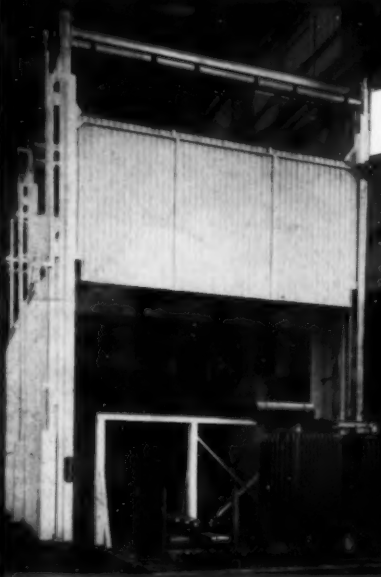
Industrial FINISHING



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Manufacturers of war supplies find our "Facts on U. S. Government Finishes" a quick, easy way to keep up-to-date on changes in government paint specifications.

These bulletins are issued as new formulations are adopted by the various Army and Navy branches.

They give thinning ratios, drying schedules and application data on the paints, enamels and lacquers used in war materiel contracts. Consequently, they are invaluable in helping establish efficient production schedules with accurate unit costs.

Be sure an up-to-date set of "Facts on U. S. Government Finishes" is in your file

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Write for your set of "Facts about U. S. Government Finishes" in a convenient file folder. Your name will be placed on our permanent mailing list and future releases on specification finishes will reach you promptly.

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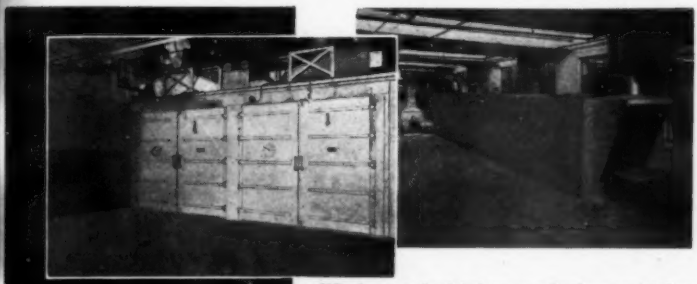

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Whether it is finish baking on a bomb—a projectile—a motor part—an oil drum, or any other part for the huge war program, Despatch has the right finish baking oven to turn it out in minimum time and with greatest possible efficiency to conserve both man hours and floor space.

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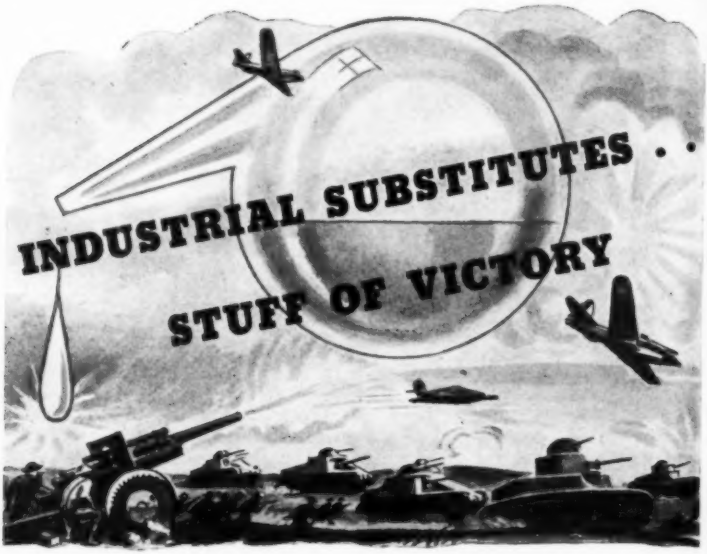

With the national war effort paramount, American industry today is proving that substitution does not mean cheap "Ersatz" . . that a high degree of quality can be maintained . . that out of the demands of necessity and the genius of the laboratory are coming new ways to overcome old problems.

To enable industry to supply the basic needs of the civilian population while putting the demands of our armed forces and those of our Allies in first place is largely a matter of releasing needed raw materials by the creative use of all available supplies.

Zapon Division is formulating finishes based on available materials that do the job—at the same time releasing critical materials which go off to war. Zapon cooperates with its customers in developing and using new finishes which will help satisfy the nation's needs while contributing directly and indirectly to the national war effort.

ZAPON
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INDUSTRIAL FINISHES

EIGHTEENTH YEAR OF PUBLICATION

Industrial FINISHING

Reg. U. S. Pat. Office

Published Monthly in the Interest of Modern Production Finishing

Vol. XVIII, No. 6 APRIL, 1942 $2.00 a Year

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Letters from Readers...

OF INDUSTRIAL FINISHING

These letters (and many others) were answered recently by the editorial department, but are published here to reveal certain interesting trends of desire and activity in the industry, and to encourage additional inquiries, comments and suggestions. Further information about any of them can be obtained by writing this office.—Editor.

Tack Rags

Please give us the name and address of the manufacturer of "Tac" rags, appearing on page 37 of your February issue of INDUSTRIAL FINISHING; and also the address of the Star Chemical Co., another manufacturer of tack rags.—T. D. Co.

Please advise me where I can obtain the Detroit "Tac" rag mentioned in the February issue of INDUSTRIAL FINISHING, page 37.—O. R.

Information supplied.—ED.

Tumbling

We have been advised that during the past year or two, there were several articles published in your magazine relating to the tumbling of enamels, and that reprints of the articles could be obtained.—N. Mfg. Co. (Utility Wooden Boxes).

We are sending you one of the reprints; also the names and addresses of manufacturers of tumble finishes and tumbling barrels.—ED.

Thermoplastic Coating for Canvas

We are writing you because we have a problem in which we feel that you will be able to be of service to us. We wish to inquire whether you can give us a list of concerns in position to coat or apply a thin coating of thermoplastic materials in solution to very light-weight cotton fabric, the application being on one side only. —M. Co.

Can some reader recommend a company in position to do this work?—ED.

Saves I. F. Magazines

I have received INDUSTRIAL FINISHING Magazine for the last two years. I have found it very helpful in my work as foreman in the finishing room. I have set up a file, tabing articles after reading them, which will be a benefit to me and my department for future reference. This file or bookcase sets over my desk and is very simple to make. The size is 30-in. long, 6½-in. deep and 9-in. high, all inside dimensions.—N. A.

Substitute Plating—A Sprayed Finish

In looking over your March 1942 issue of INDUSTRIAL FINISHING, we notice an article on page 7 wherein some one mentioned about putting sprayed finish on that looked like a plated finish. We wonder whether or not you can give us information relative to the manufacturer of this type of finish?

We are in the same situation as the gentleman who wrote in. We will have to find a substitute for plated finishes, and we hope you will be able to give

VINDOLAC

Still Available to Our Regular Trade, Also

DU BAR BLEACH **WATEROIL STAINS**

FILLERS . . . No. 1900 CLEANUP POLISH

and numerous other items

Although most of our facilities are now directed toward manufacturing Government products, we are still making every effort to supply regular customer requirements.

V. J. DOLAN & COMPANY, INC.

Mfrs. of "Unquestionable Quality" Industrial Finishes

1830 N. LARAMIE AVENUE CHICAGO, ILLINOIS

FOR DEFENSE!

1,000—1" Buckles Lacquered per minute.

500—Large Cartridge Clips coated per minute

with R 200

"SPEEDIP"

WHIRL ENAMELER

and Coating Machine

No Waste in Time or Materials

A combination dipping - whirling machine for completely coating large quantities of small parts with lacquer, enamel, paint, oil, wax, etc. • All operations are within the machine. Parts are dipped into coating material, raised and whirled. Time—as little as 30 seconds. Speeds up production—cuts finishing costs—saves coating materials. • Write for further details or send samples to be coated.

R 200

RONCI MACHINE CO.

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Defense products often require specially formulated protective coatings to meet the exacting conditions of wear, tear and abuse which they will receive in actual use. United's chemists have developed the DEFENDER LINE of protective coatings to meet the extraordinary specifications and requirements of defense products. If you have a production finishing problem on priority rated products you will find a quick solution among UNITED'S DEFENDER Line of protective coatings.

Send us your specifications and requirements—working samples and complete information will be sent promptly.

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THINNERS
ENAMELS
METALIZED FINISHES
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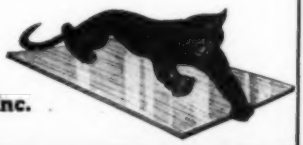
UNITED LACQUER MFG. CORP.
General Offices and Factory: Linden, New Jersey
New England Mfg. Division: Boston, Mass.

Compare **KILNVAR with your present furniture finish. Results will tell.**

A production test of the BAKESEAL-KILNVAR Finishing System will tell you conclusively whether better finishing can be yours with this modern system. BAKESEAL, for undercoat, provides a tough, solid foundation for enduring finish. KILNVAR rubs to a clear transparent film . . . resists hard knocks . . . is offered in Gloss Rubbing, Semi-Gloss and Flat effects. Whether you air dry or force dry, superior results await you with the BakeSeal-Kilnvar Finishing System!

Arrange for a production test direct or through your Schaefer representative.



THE SCHAEFER VARNISH CO., Inc.
Louisville, Kentucky

us the desired information.—Y. Mfg. Co. (Metal Stampings, Moldings & Specialties.)

In your March issue, on page 7, there is a letter at the bottom about some "plated finishes." Will you please put us in contact with the firm who supplied this information?—C. Co. (Designers & Mfrs.)

At present we know of only one firm that manufactures this finish, "Platelustre," and we are sending you the company's name and address.—Ed.

Wire Stencil Screen

ADVISE WHO CAN FURNISH WIRE SCREENS FOR STENCIL PROCESS FINISHING.—L. F. CO.

Paint Brush Makers

We would like to have the address of Hanlon & Goodman Co. They manufacture paint brushes and we thought you probably would have their address.—F. A. Co.

Our directory shows that this company is in Belleville, N. J.—Ed.

Decalcomanies

On page 19 of July 1940 issue of Industrial Finishing, I notice an article by Harold Dean about graining with decalcomanies. Can you give me names of manufacturers?—D. N.

Information given.—Ed.

Rust-Proof Coating

We note with extreme interest, in the February issue of Industrial Finishing, page 4, the letter from one of your readers signed "C. L. S." and entitled "Rust-Proof Coating."

We would appreciate receiving the same information that you furnished this inquiry. — R. S. Co. (Technical Laboratories).

Information furnished.—Ed.

Fast-Drying Varnishes

In your February issue I read a small article on "Fast-Drying Varnishes," by Mr. Ferd Rosen. Would you be so kind and send me the addresses of these varnish manufacturers? Also, is there a flat varnish that

CAN'T GET LACQUER? . . . . TRY

SUPER-KAMEX Sensational FINISH

The New Finish that combines best features of Lacquer and Varnish

Cabinet and furniture finishers find Super-Kamex is just what they have always wanted—a new and improved finish with the **best features** of varnish and lacquer without the faults of either. Has twice the solid content of lacquer and dries as quickly. Can be sanded or polished within an hour. Waterproof, alcohol and alkali resistant. Best results with spray but brushes well if thinned with 5% to 10% turpentine. Non-lifting—can be applied to any surface. One coat of SUPER-KAMEX equivalent to two of clear patented lacquer. An ideal product for furniture finishing and refinishing. Comes in **clear gloss, semi-gloss and flat.** FREE—Send today for liberal SAMPLE and visual-proof panel which shows comparative results. Also ask about Dry Stains, Stick Shellac, Shellac Enamel. Full information.

You Can Count on Campbell

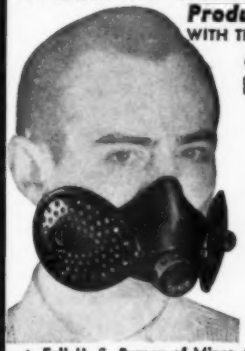
M. & C. CAMPBELL Company

"Fine Finish Leadership for 25 Years"

706 EAST 19TH ST. KANSAS CITY, MO.

SPEED UP WARTIME Production! WITH THIS NEW

Cesco No. 94 RESPIRATOR



★ **Full U. S. Bureau of Mines Approved (No. BM-2142) against Type A (Silica), Lead and Nuisance Dusts. Equip your workers with this new COMFORTABLE and SAFE Respirator for FASTER DEFENSE PRODUCTION. It's the "Cesco No. 94." Write**

Chicago Eye Shield Co.

2367 Warren Blvd. Chicago, Ill.

1-9-4-?

Some year the war will end.

Swords will be beaten into plowshares, and golf clubs and refrigerators.

There will be a swing back into the things we buy because we like them and not because they are a grim necessity.

You are planning these things now, or should be. Let us plan with you toward the finish for 1947, whenever it is.

We welcome any call for cooperation on long-range planning for the finish of the future.

Meantime, for 1942 and as far as we can see, we shall do our utmost to supply our customers with the best available materials and service permitted by wartime conditions.

The Varnish Products Company

5208 HARVARD AVENUE

CLEVELAND, OHIO

dries very hard to the touch—one that dries not too dull and can be brushed on? I have a large shop and am in need of such materials, mostly to be used for refinishing work. I have used these materials for quite some time, but I find that they don't harden enough to suit me.

I am doing a great deal of work for hospitals and they demand a real good finish—one that is alcohol proof and water proof, and it must be very hard. I will appreciate all the information you can send me by return mail.—P. C.

Information supplied.—ED.

Penetrating Wood Sealers

In your March issue of INDUSTRIAL FINISHING, we note on page 77 that you are willing to furnish names of producers of material similar to "Woodlife." Will you be good enough to also let us have such a list? We too are engaged in Government Defense House Projects and are in need of this product, or something similar to it.—A. B. Co. (Window and Door Screens).

Fast-Drying Varnishes

On page 80 of the February 1942 issue of INDUSTRIAL FINISHING, you mention fast-drying varnishes. Can you suggest several suppliers of these, whom we can contact?—F. G. Co. (Fishing Lines).

Substitutes Interesting

I've read one of the series of articles you've run on the subject of substitute finishes your industry may have to turn to, and this certainly is meaty, clean-cut material.

If you have no objection, I'd like to reprint some of this material, or any other INDUSTRIAL FINISHING material of a substitution nature that might be agreeable to you. . . . Thank you for whatever permission and tear sheets you can send.—S. & S.

Production Expert Endorses Editorial

Your editorial in the February issue of INDUSTRIAL FINISHING, "Real Production Experts Now In Demand," interested me considerably because I have been engaged by several of the machine-tool manufacturers in the east to make a survey of their finishing

(Continued on page 83)

Remember Pearl Essence for Substitute Metallic Finishes

TABLE OF REFLECTIVE LIGHT VALUES

COATING OR MATERIAL	PHOTOMETER UNITS
Aluminum Bronze	200
Glass Beads	400
MEARLMAID PEARL ESSENCE	**1100**

- **Instrument Panel Boards — Dials — Controls — Handles on Valves, Jets, Switches, etc., and all objects to be seen in dim light require a coating of high reflective light value. MEARLMAID PEARL ESSENCE is the right coating.**
- **Manufacturers of Tanks—Bombers—Fighters—Peeps—Jeeps —Trucks—Radios—Signal Corps Equipment—Materiel—P. T. Boats and Naval Craft should investigate the extraordinarily high reflective light value of a MEARLMAID PEARL ESSENCE coating.**
- **It is a non-conductor—Can be applied to all kinds of materials —Supplied in full range of colors—Can be used wherever lacquer is suitable.**

Complete information, data and your samples finished on request.

THE MEARL CORPORATION

153 WAVERLY PLACE NEW YORK, N. Y.

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ROSELLE, N. J.

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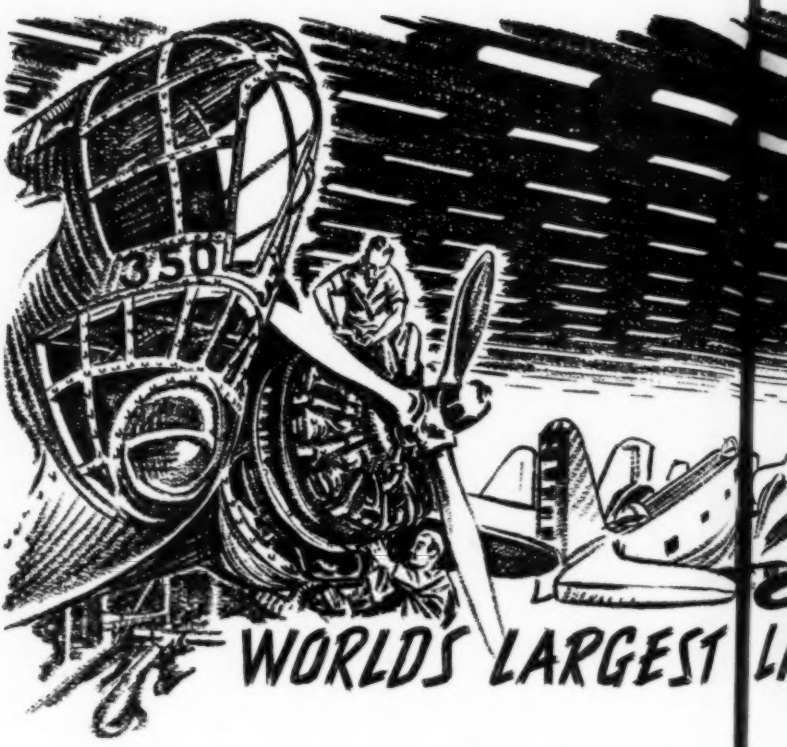
MEARLMAID PEARL ESSENCE

Priority Rating Is Not Required

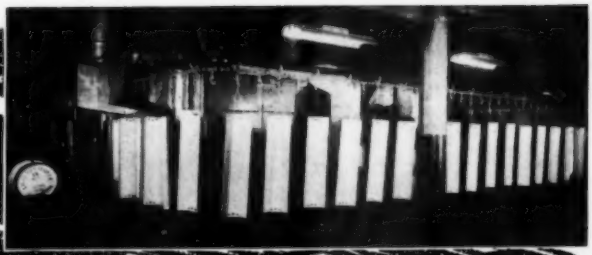
Available in Unlimited Quantities

"WORLD'S LARGEST PRODUCER OF PEARL ESSENCE"



When the bombers start rolling off the assembly line at the new Ford bomber plant at Ypsilanti, Michigan, the men making them will be working under light supplied by fluorescent fixtures, all of which are protected with LILLY'S Finishing Materials. According to a com-

THE LILLY COMPANY
HIGH POINT, N. C.



Lilly FINISHES ON THE LIGHTING FIXTURE ORDER

munication received from the manufacturer of these fixtures, **"this is the world's largest lighting fixture order."** We are proud to have had LILLY'S Finishes selected for this important purpose. Insert picture shows conveyor line loaded with fixtures leaving baking ovens.

LILLY VARNISH COMPANY
INDIANAPOLIS, IND.

How Color Helps Output

You will notice that the newly developed technique, which we have named "Three-Dimensional Seeing", has proved to be a worthwhile production accelerator, and at the same time it furnishes a very substantial reduction in operator injury hazards, therefore it is a most timely development.

BY MATT DENNING
E. I. duPont deNemours & Co.

MEN, plus machines, control production. Even in this age of largely mechanical mass production, the output of any plant depends on the speed and accuracy of machine operators. Yet the hands of even the most skilled workers are only as capable and efficient as the eyes that guide them.

Under perfect conditions, seeing is so clear, sharp and effortless that hands respond quickly and with safety. But—even with today's peak demands requiring maximum human efficiency—many manufacturers fail to provide really adequate seeing conditions. While an enormous investment of time and money is made annually to create light in plants and factories, in many cases part of this expenditure is wasted. For all too often this valuable light is "blotted up" by dingy walls, ceilings, floors—and, more particularly, the machinery is so camouflaged in dull green, deep gray or black that it blends into a solid, dark mass.

Even with modern lighting and well-painted walls and ceilings, drab-colored machinery "eats up" much of the light so expensively created. Contrasts are lacking; eyes strain; hands are slowed down. Danger spots are not emphasized and, in too many cases, those nimble hands are maimed.

Two basic elements are required to secure strainless, full vision. These are color and light in the right combination.

Color Contrast Needed Between Machine and Products in Work

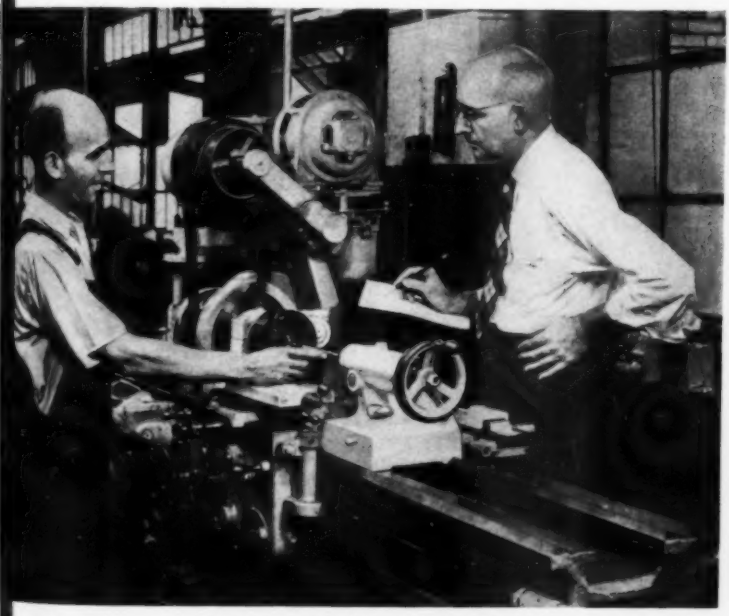
In numerous cases in the past, manufacturers have experimented on this theme without the aid of scientific research. A notable example about 12 years ago was a shoe manufacturer whose machine operators complained of headaches and blind spots. Watching a man at work on a black shoe at a black finishing machine, the manufacturer noticed there was no contrast; the line of demarcation was hardly distinguishable. With a sudden inspiration, he instructed the worker to select a pleasant color from the paint shop, clean his machine and paint it. Before long, other workers followed suit and the result was a factory sporting "every color in the rainbow."

ut of Active Machine Tools

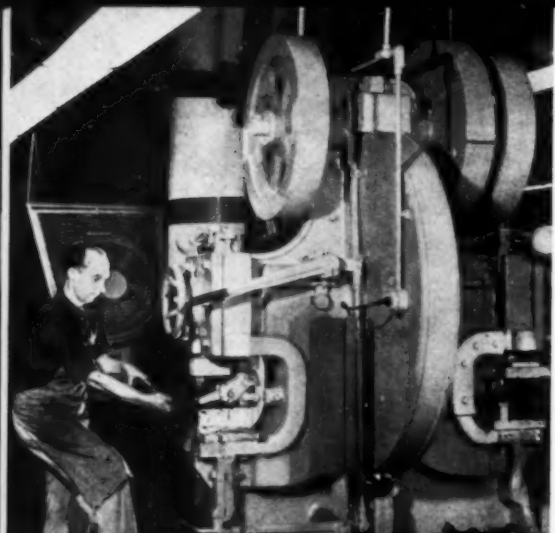
With the sudden sharp contrast between leather and cutting edges on the machines, the accident rate fell off by nearly 70%; there was less fatigue and fewer "seconds."

As this shoe manufacturer learned, eyes are naturally attracted to the brightest area in the field of vision; they automatically turn to the light spot. Yet this principle is generally overlooked and machines are painted in a solid drab color. And, while it has been unintentional, this type of painting has succeeded only in camouflaging machines so far as workers' eyes are concerned, making it difficult for operators to distinguish danger points in bandsaws, lathes, presses and other tools.

As a preliminary "guinea pig," a gray punch-press was chosen for paint study by Du Pont technicians. In its original dark gray,



Time studies and psychological surveys showed that Spotlight Buff at working areas and Horizon Gray on the body of machines increased operating efficiency and that workers reacted more favorably to this pleasing combination than to any other colors tested.



In its original dark gray this punch press, selected as a "guinea pig" by Du Pont paint technicians, was so near the color of the metal undergoing fabrication that it was difficult for operators' eyes to separate the danger point from other machine areas.

the machine was so like the color of the metal undergoing fabrication that the danger point was far too hard for eyes to separate it from other machine areas. Successive experiments were made by painting the machine with light green, yellow, aluminum, light blue and buff, all of which colors produced more brilliancy than the old gray paint. Photometric measurements of the light reflected by different colors revealed that *buff was the best, closely followed by light gray, aluminum and green.*

Light Color Used Only at Operative Area of Machine

At this point, "seeing" conditions had been improved by creating a contrast in color and brightness between the work and the background. Going a step further, the working area was separated from the mass of the machine by using a light color near the tool area and a darker shade for the remainder of the machine. A medium gray body color with buff around working areas (both semi-gloss washable colors) proved to be the best color treatment. In addition to providing more light and better seeing conditions at the actual working surface, this combination attracts the eye instantly and clearly spot-lights the exact location of the danger points. The action is positive without being too abrupt to be uncomfortable. It produces a "3-dimentional seeing" effect.

Encouraged by the results of this punch-press experiment, Du Pont technicians, in cooperation with light specialists of the Philadelphia Electric Co., conducted further tests in a modern machine shop. Fifteen observers, including two supervisors, were selected and arrangements were made to paint two machines — punch-press and metal shears—in different colors on alternate Fridays. Light blue, aluminum, yellow, light gray, light green, buff and medium gray were the colors used.

While the opinion was unanimous that all these colors made the operators' seeing task easier than

the traditional gray, the preferred colors were all light in tone. The least desirable for use on the machinery under test proved to be green and yellow, although they are useful in other applications.

Time Tests and Reactions of Workmen to Color Changes

A series of time studies was conducted on a standardized task to ascertain the effect of the various colors upon actual operating efficiency. Tests were made under both mercury and incandescent light for each color. Reactions of operators after a week's experience were then recorded and computed. *The winning combination in these careful studies was buff for the working area and medium gray for the body of the machine—the same combination which, in controlled tests, proved to have the best reflecting qualities.*

During the eight weeks of the tests, a psychological survey was conducted among 15 operators to determine their personal reactions to the various colors being tested. The results were weighed with the other factors of color contrasts, light-reflective factors, and required operating time. By this thorough method, the 3-dimensional colors scoring highest on all counts were *buff* and *medium gray*. It was found that:

1) The soft contrasts created by this combination were easier on the eyes than abrupt changes in brightness;

2) These colors were best in reflective qualities;

3) Operating time was faster and more efficient because lighter tool areas concentrated attention on the work and highlighted danger points;

4) Workers reacted more favorably to the buff and gray combination than to the other colors tested. The chief feature of this color treatment is the 3-dimensional effect secured by controlled color contrast. The work in machines so treated stands out clearly in stereoscopic sharpness that cannot be achieved by brightness contrast alone.

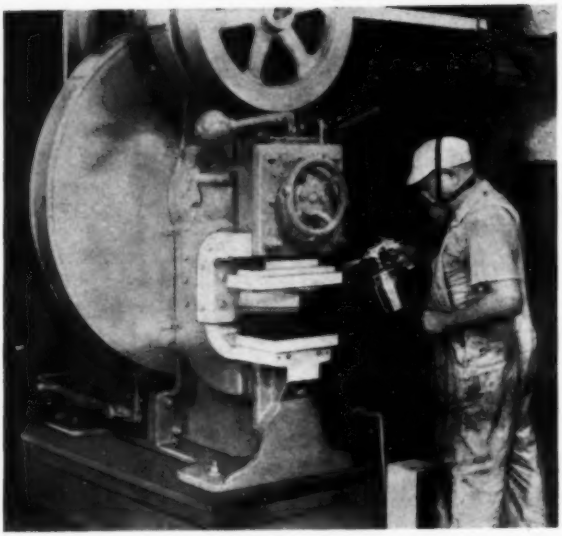
The two shades which, in this series of exhaustive tests, made possible this 3-dimensional seeing effect have been especially formulated by Du Pont and have been designated as Spotlight Buff and Horizon Gray.

Improve Working Surroundings, too

After discovering the advantages of 3-dimensional painting as applied to machinery, the technicians and the lighting experts turned their efforts to the study of walls and ceilings. It was felt that, for better seeing and working conditions, the color-treated machinery deserved proper surroundings; that still further benefits could be accrued for the employer, as well as his employes, through a complete color operation.

As much care, study and time went into the subject of revamping the background with paint as had gone into individual machines. What colors would give the most pleasing, non-distracting effect and at the same time rob the least amount of light? This question was the primary concern of the color and light experts, who have been working on the entire 3-dimensional seeing survey since 1937.

Light-colored paint on traditional brick walls proved to be the best answer to this phase of the



After painting this punch press to remove the camouflage caused by solid, drab colors, the working area was "spotlighted". This reduced eye fatigue and increased operating efficiency because the work in process stood out in stereoscopic sharpness.

problem. It dispelled the monotonous gloom in the over-all picture created by most factory interiors and changed the atmosphere into a bright, cheerful one which makes for more satisfactory working conditions for employes. Light ceilings, as proved in numerous tests, decreased the "lost-light" problem so acute with dull, dingy ceilings, which ordinarily soak up light like a sponge absorbs water, and thus increased seeing ability of the workers.

When the 2-toned machines were combined with light ceilings and side walls and a well-lighted working area, complete 3-dimensional seeing resulted.

Paints and Their Reflection Factors

Properly chosen paint for walls and ceilings not only helps conserve light but also reflects and diffuses it, eliminating objectionable sharp contrasts. Thus, the right paint is a most important partner of light. While requirements vary according to conditions in individual plants, ceilings should, as a general rule, reflect at least 75% of the light that strikes them in order to provide adequate lighting on the working plane. Often higher values are desirable. Painted walls directly in line with a worker's vision should have a light reflection factor of 50% to 60% to provide proper and restful lighting conditions for the operator's eyes.

White ceilings and walls reflect a maximum of light; but, in some cases, light colors are preferred to white, even at a sacrifice in lighting efficiency. Generally speaking, low-ceilinged areas give greater light diffusion when flat or eggshell finish is applied. But when factory ceilings are excessively high, a gloss white may be the best solution, particularly when such factors as dirt resist-

ance and washability must be considered. For these qualities, a glossy finish will give the best performance.

With this new scientific use of color and light, manufacturers benefit in four ways:

1) Increased production;

2) Reduced accident hazards;

3) More comfortable working surroundings for employes;

4) Improved labor relations.

Because 3-dimensional seeing insures fast, accurate vision, workers are able to perform their tasks far more quickly. Errors are cut to a minimum; flaws are quickly spotted; and increased production through more-efficient, higher-quality workmanship is a natural result.

When machinery is painted with the specially-formulated buff and gray, the contrast between the machine proper and the danger area is more clearly defined. Under such ideal conditions, workers' eyes function quickly and accurately; their hands respond efficiently and accident hazards are automatically reduced.

The standard of working conditions has increased down through the years, but never have the comforts of employes been more important than today. With the scientific use of paint and light, drab factory interiors, rest rooms and other surroundings are made cheerful and radiant with comfort. Such thoughtful consideration on the part of progressive management is keenly appreciated by workers.

The provision of cheerful surroundings has a definite and invaluable psychological effect on workers and goes far in promoting better labor relations. For the right combination of color and light creates an atmosphere of brightness and makes seeing easier. Less eye-strain, greater safety, less nerve fatigue—all of these contribute greatly to the better morale of the worker.

Correction of Error in Drying Room Article

In March issue of INDUSTRIAL FINISHING, page 17, an illustration of a finish drying room is shown which is incorrectly captioned, "A finish drying room without conveyors." This drying room does have a conveyor — a conveyor entirely different from the usual type and almost hidden, but nevertheless it is efficient and economical. The chain links travel along at each side close to the edges of a raised floor, and cross bars which span these chains engage the feet or bases of furniture and move the furniture slowly but positively through the drying room or oven. This is the Irwin patented conveyor finishing kiln.

The manufacturer, Irwin Equipment Co., has called our attention to this error and states further that:

"As you must remember, the sole reason for the Irwin Equipment Co's. existence is the fact that we have developed a patented conveyor unit which was constructed primarily for the furniture industry and which we feel, because of its being designed for the furniture industry, is the most efficient, compact and economical equipment for this purpose that has been developed up to date."

If you still have your copy of the magazine, please mark in this correction.—EDITOR.

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Furniture Style Forecast

BY RUTH HAMMOND

MOODS of America at war, at work and at home will be exemplified in new home furnishings and defense products to be seen during the annual spring market at the American Furniture Mart in Chicago, Ill., April 27 to May 2.

Manufacturers in all branches of the industry are aware of the powerful influences which are affecting this country's way of living, and have been quick to adapt portions of their plants and their lines to the new trends.

Defense housing has become a vital factor in the home furnishings field. Every effort is being made by industry leaders to fulfill the ever increasing obligations which both government and consumer have placed upon manufacturers.

Great designers like Sheraton, Hepplewhite and Chippendale provided inspiration for the functional period furniture which will be on display, and contemporary experts have concentrated on modern design. These new trends, adapted from the old, may completely answer the dealer's present defense home-furnishings problems.

Chinese, Pan-American Influences

Increased emphasis on Chinese and Pan-American influences in occasional pieces and fabrics are in prospect as public interest in, and sympathies for the United Nations increase.

A notable trend expected to be seen in occasional furniture will be the substitution of gilt paint for brass as ornamentation on ta-

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Key to illustration on opposite page:

1) Pin-striped walnut is used in a modern manner on this server. The drawer pulls are also of walnut. The complete suite includes table, buffet, china and both arm and straight chairs.

2) An allied influence is shown on this leather and wood cocktail table. The table has a hand-tooled leather top in red, and a definite Chinese design has been used on the trim. Legs are mahogany.

3) Lacquered in decorative Pennsylvania Dutch, this cedar chest has a dark green background with a brightly colored design. Two large drawers at the base of the chest can be utilized for extra storage space.

4) Pan-American unity is in evidence in this group. Made of maple and hand decorated, the chairs and tables shown are only part of a large correlated grouping for living room, dining room, bedroom and rumpus room.

5) Lattice work on a cocktail table is something entirely new. The table top is glass under which a cut-out pattern has been enameled in striking white. The frame of the table is bleached mahogany.

6) Clever use of various wood tones and grains has made the design on this modern limed-oak chest a style highlight. The chest has considerable storage and drawer space.

Photographs, American Furniture Mart.

An attractive and intriguing suite of juvenile furniture. The colors used are white, pink, green and yellow and combine decoration and utility. Notice the unusual treatment for drawer pulls. The set will be featured during the spring national home furnishings market, April 27 to May 2, at the American Furniture Mart in Chicago.

ble legs. China drawer pulls promise to be tokens of a new version of eliminating essential defense materials. They would give plenty of variety to occasional pieces, and add dash in a definitely pleasing manner.

Chateau Finishes

Continued interest in chateau finishes is in prospect. This light finish can be used on period furniture without eliminating the period effect. Leather tops in contrasting colors on cocktail and lamp tables, and on secretaries may be an unusual new feature in the occasional furniture field. Blue on chateau, green on bleached mahogany, or red on walnut would make striking and good looking combinations.

Smaller pieces of furniture will be available in every style. Combination living and dining rooms are now, more than ever, in vogue and furniture which is adaptable to various purposes will gain in popularity. Many variations of the dual purpose piece will probably be on display.

Fabrics will appear in spirited colors and bold patterns. Appliqued flowers on plain backgrounds are among the compelling details which may gain in importance.

Defense Products Made in Furniture Factories

Aside from furniture and home furnishings, defense products being made by manufacturers whose plants have already been partly converted to war production, are expected to be on exhibition. Authoritative plans, suggestions and actual blueprints for firms desiring to participate in the war production drive will also be available at the market.

AVOID WASTING MATERIAL BY USING

Correct Spray Set-up

BY WILLIAM WILSON
Consulting Engineer

THE following procedure is the only proper way to set up spraying pressures, both atomizing and fluid, giving consideration to all the known factors such as economy, production, quality, viscosity, type of paint and size and shape of article to be coated. Assuming that pressure-feed equipment is being used and a modern spray gun, you follow these several steps in order.

1. Place the object in booth or hang it on moving conveyor—the conveyor being set to travel at its regular production speed.

2. Set atomizing air pressure at regulator, between 45 and 60-lbs.

3. Give spray gun to an operator with fluid adjustment wide open. (Use "F" or "No. 16" fluid tip and needle).

4. As operator starts to spray object, increase the fluid pressure at pressure tank, paying no attention to pressure on gauge, until the operator tells you that he has sufficient paint for the speed required to do the work.

5. After being informed by the operator that he has sufficient paint, note the pressure on the pressure tank gauge.

6. Increase the pressure until the operator complains that he has too much paint to do his work properly.

7. Note at what pressure the operator said that he had too much material.

8. Reset the fluid pressure at a point half way between where the operator said he had enough and where he said he had too much.

9. Returning to the atomizing pressure regulator, reset this at the lowest possible pressure to obtain the finish desired. First lower the pressure until the materials sprayed are out of control. This will be indicated by runs, sags or beading. Next, increase from the lowest pressure until you have complete control of the material on the surface being sprayed.

10. Stop at the lowest pressure that you are able to work with, and note the gauge pressure.

11. Demand that these pressures remain for all time unless changed by the foreman.

12. Insist that the spray gun fluid adjustment screw remain at the open position.

Objects being sprayed are of various sizes and shapes, and this has a great deal to do with how wet you spray. An object having many ribs and projections or depressions will have places that are recoated several times during the spraying of one coat. Objects such as these will require more atomiz-

ing air pressure than plain objects, to keep them free from runs.

Low atomizing pressures will save many gallons of material which are otherwise lost in the exhaust air. Materials in the exhaust air collect in the booth, on the fan and in the stack, which must be cleaned by an expensive maintenance crew. Sometimes waste spray escapes through the exhaust stack and is deposited on automobiles, neighboring homes and trees as far away as two blocks from the plant.

If water-wash booth equipment is used, much less sludge will be collected and less compound will be necessary.

To all those interested in economy, get your data together over a one-week period, on the method you are now using; then set the equipment according to the 12-point program just given, and keep the same records for the same length of time. I predict that the saving of paint alone, not to mention lower maintenance costs and a cleaner paint shop, will be so many gallons of paint that you will be indebted to INDUSTRIAL FINISHING enough to purchase subscriptions for every man in your paint shop.

Aid Workers' Seeing

WORK and worker's seeing ability vary. One operation may require high intensity spot lighting of the direct type. Another may call for high intensity low-brightness lighting over a relatively large area. Still another may need high intensity daylight quality of lighting. One worker may need the light source 6-in. removed from his tasks. Another may require it 36-in. away; and still another may need it at several different distances as his work progresses.

Engineered lighting service starts with study of the task a worker is performing, to find out what he must see clearly to do his job efficiently and comfortably. It continues on to the determination of just what quality, quantity, and distribution of light is needed by the individual worker. It selects the lighting unit which supplies the required illumination most economically. And, finally, it positions the lighting unit to the best advantage of the individual and his fellow workers.

All practical lighting engineers are ready to study lighting problems and make suggestions for their solution. — *Fostoria Pressed Steel Corp.*

Repainting 1000 Chairs Quickly

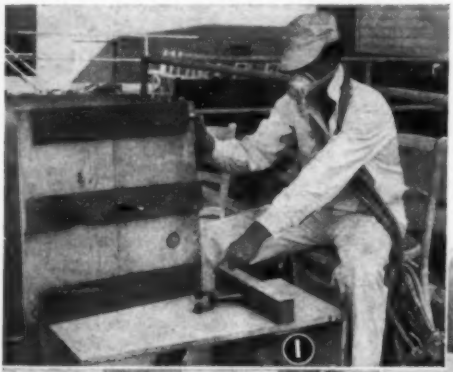
I REALIZE that it would be "duck soup" for an expert finisher to repaint 1,000 chairs quickly if he had them in a finishing room fitted up with a spray booth, turntable and all accessories. It wouldn't be worth writing about. However, the job I have in mind was what you might call an emergency case —one of those that is suddenly thrust upon a finisher unexpectedly and it must be done quickly.

A popular night club had more than 1000 bent-wood chairs and practically all of them were in constant use while the club was open. The management decided to have these chairs repainted. The work had to be completed and the paint had to be dry between closing time in the very early hours of the morning and opening time that same day or evening. A painting contractor handled the job.

Naturally, he used the spray system and a quick-drying paint. The work was done outside, as shown in the accompanying pictures, hence no spray booth was needed.

The one thing that is very essential for a job of this kind, but which wasn't included in the contractor's equipment when he bid on the job, is a turntable. An emergency turntable was quickly fitted up and mounted to rotate easily as shown in the accompanying pictures. The mechanism for holding the table in position and permitting it to rotate smoothly and easily consisted of the parts of an old buffing or grinding wheel standard. This emergency turntable worked perfectly and could be turned with the flick of a finger.

The second problem encountered was that of protecting the leather upholstery of the chairs. This was solved by making and using a close-fitting mask that rests right over the chair seat. The mask was made of soft metal, the edges being cut and bent into shape. A handle riveted to the top of the mask makes it easy to rotate.—L. S. F.



1—See what's under the turntable to allow it to turn easily.

2—Spraying a chair.

3—Using a masking shield to protect leather seat from sprayed paint.

Notice the protective respirator that operator wears while he is spraying.

Testing New Finishes for

BY PAUL WALLACE

The rubbing qualities of a new finish depend on several factors, such as the chemical make-up of the material, type of abrasive and rubbing lubricant used, and what kind of methods are employed to condition and rub the final film. One or more of these factors may have to be changed to produce best results.

ALL clear wood lacquers, while they are still in the can, look very much alike. Naturally, some are slightly paler or darker than others. Some may appear thinner or heavier in viscosity. They spray in pretty much the same manner—some more freely while others are slightly stiffer. They even dry alike, if one can discount for the moment, minor differences in drying speed and apparent fullness.

It is not that these minor differences can be totally ignored by the progressive wood finisher, who wisely and exhaustively conducts comparative tests from time to time; but rather that these differences are not critical since they are all more or less amenable to correction, either at the source of manufacture or through the judicious adjustment of spraying conditions by the usually versatile spray foreman. Therefore, we repeat, that up to this point all clear wood lacquers look very much alike—that is, until they are rubbed.

Rubbing Is a Critical Test

There is no need to discuss in detail the economic factors of production rubbing and polishing, for it is only too well known that rubbing and polishing operations are indeed critical. To begin with, they are operations upon which the eye appeal, and therefore the sales appeal of the finished product depends. In addition, rubbing is one of the expensive processes in furniture manufacturing. It is expensive, not only from the standpoint of labor cost, but also be-

Their Rubbing Qualities

cause it is time-consuming to the point that rubbing frequently constitutes the major bottleneck in production line finishing.

Often the first experimental rubbing of a new lacquer [or other clear finishing coat] is the most critical point in its evaluation. The result of this test is all too frequently the deciding factor in determining the suitability of the material. Lacquer manufacturers have grown gray at the temples from hearing reports from prospective users to the effect that their lacquer would not rub satisfactorily, even though it was highly prized by other satisfied consumers. Conversely, the foreman finisher who conducts tests in his unceasing quest for a better material, is all too frequently irritated by the fact that he has been talked into testing what is purported to be a new improvement in wood finishing. At the end of his test he finds that the material does not meet the rubbing requirements.

This article is not intended to be a recrimination of the manufacturer for his claims, the salesman for his optimism, or the finisher for his rejection of the material. *I am only striving to explain why a lacquer will or will not rub, what the controlling factors are that determine rubbing and polishing, and why these factors must be varied to produce optimum results for different materials.*

Lacquers Differ Widely in Composition

As we all know, rubbing lacquers are composed of nitrocellulose, resin, plasticizer and solvents. Since solvents are volatile and have evaporated by the time the furniture is dry, it is obvious that it is only the first three ingredients which must be dealt with in any after-treatment of the dried film. The quality of this film is, to a certain extent, a result of the types of nitrocellulose, resin and plasticizer used—but more important, from the standpoint of final results, is the ratio or relative amounts of these separate ingredients to one another. For example, there are the so-called *royalty lacquers* which contain relatively large amounts of low-viscosity nitrocellulose, the use of which is

covered by patent royalties. These lacquers usually contain resins and plasticizers in relatively equivalent amounts to the nitrocellulose used, and generally vary between the following compositional limits.

Nitrocellulose	45%	to 30%
Resin	10%	to 60%
Plasticizer	45%	to 10%
Total	100%	100%

On the other hand, there are the so-called *non-royalty lacquers* which contain high-viscosity nitrocellulose, the manufacture and use of which is not covered by patent. Those lacquers can therefore be made and sold at prices lower than the royalty lacquers, but, because of the high viscosity of the nitrocellulose, only a limited amount of this material can be used in any given lacquer; the balance of the composition must be made up of properly chosen resin and plasticizer combinations. Such lacquers, depending on the solid content desired, usually vary between the following limits.

Nitrocellulose	25%	to 9%
Resin	63%	to 88%
Plasticizer	12%	to 3%
Total	100%	100%

Lacquer Ingredients are Difficult to Determine

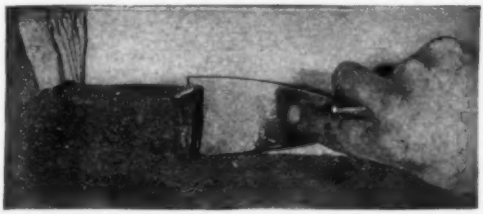
From what has just been stated, it is readily seen that in some lacquers the nitrocellulose is one of the principal solid ingredients, while in others the resinous constituents predominate—or the material may be intermediate between the two extremes and, as such, will contain roughly two or three parts of resin to one part of nitrocellulose. The important point to bear in mind is that these differences in nitrocellulose to resin-plasticizer ratios cannot be determined accurately by any method other than that of chemical analysis. The appearance of either type can be identical in color, viscosity, drying time, and fullness.

The only physical property that varies markedly with a change in nitrocellulose-resin ratio is that of the reaction of the film to various rubbing methods. While such rubbing properties can be predicted by an experienced lacquer chemist who is familiar with the characteristics of the ingredients which he knows to be in the lacquer, no one can, with any degree of certainty, determine whether a lacquer is of the royalty or non-royalty type without conducting the aforementioned chemical tests.

If the ingredients are known, however, the rubbing properties can be predicted because of the known effects of the various solvents which are found in rubbing liquids and polishing compounds on both nitrocellulose and resins in general, and because it is known that the effect of solvents on a mixture of nitrocellulose and resins is in proportion to the effect on each constituent, in the ratio of its predominence in the film.

Solvent Effect on Lacquer Constituents

Nitrocellulose is the most difficultly-soluble ingredient in any conventional lacquer film. Chemically, it is one of the most complex of all known organic molecules, and in physical size alone, it is one of the largest to be found in any paint mixture. Because of its molecular size, it is a material which is difficultly-soluble, and for that reason, lacquer thinners must contain substantial amounts of extremely powerful solvents such as esters and ketones. For the same



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reason then, it is necessary to use one of the stronger rubbing liquids, such as gasoline or petroleum naphtha, if a lacquer of high nitrocellulose content is to be leveled quickly and efficiently.

Resins, on the other hand, have lesser molecular complexities and a smaller average molecular size than nitrocellulose, therefore they require less powerful solvents to dissolve them to the liquid state. Aromatic hydrocarbons such as toluol and xylol, or even petroleum hydrocarbons such as gasoline or petroleum naphthas, are all that are generally required. It follows therefore, that in order to obtain efficient leveling and rubbing, only the very weakest liquids, such as mineral or vegetable oils, should be used with highly resinous materials.

Relationship Between Solvent Effect and Rubbing

The one factor that is probably the most neglected, and yet a most critical one in the leveling of any lacquer film, is that of the exact function of the various liquids used to facilitate the rubbing and polishing operation. Such liquids are all too commonly thought of as mere lubricating vehicles for the abrasive used. This conception is unfortunately an erroneous one.

Rubbing liquids do lubricate the abrasive particles and prevent them from leaving deep, not easily removed scratches which mar the final polish—but more important, these liquids, *through controlled solvent action*, actually bite into the surface of the lacquer film and imperceptibly soften the surface so that the rubbing or polishing agent can do its work with a minimum of effort. This effect on the film is most easily demonstrated by the fact that a weighted print test will leave a greater mark on a freshly rubbed section of a panel than it will on an unrubbed section of the same panel.

Not only does the rubbing vehicle soften the surface of the film for the benefit of the particles which actually do the cutting, but it also, through its penetration into the film, assists the further softening of that film by making it more thermoplastic. Since all rubbing and buffing action, whether by hand or by machine, tends to generate frictional heat, this heat, by its softening action, assists capably the cutting action. Naturally, solvents that soften the film excessively must be avoided, since frictional heat, by its additional softening action, may tend to "burn" the film and leave a smeary surface rather than a bright and level one.

Sanding Liquids should be Chosen by Trial

In testing a new rubbing lacquer, it is important that it be given a fair chance to demonstrate its ability to do the job required of it. It must be rubbed and polished by the method that will do it the most justice. There is only one way in which to determine how it can best be rubbed, and that is by trial and error, unless, of course, the manufacturer has recommended a specific method of treatment, in which case directions should be followed implicitly.

The suggestion of using the trial and error method may sound as though this procedure would involve a prolonged and complicated series of tests, but fortunately this is not usually the case. Since the first operation is generally that of cutting down to a level surface with sandpaper and a "lubricant", much information can be gained

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by carefully observing the action of the liquid in this preliminary wet sanding. All that is required is a can of mineral oil, motor oil, crude oil or paraffin oil, and a second can of gasoline (non-leaded type), varnolene, varsol or some other petroleum distillate. One or the other is then tried with the usual grade of "wet" sandpaper.

If, when using the mineral oil, it is found that much rubbing is necessary to cut down all of the irregularities and orange peel, it may be necessary to switch over to the gasoline-type vehicle to obtain a faster leveling action. On the other hand, if the oil sanding tends to cut down normal time, it might be well to continue the use of oil throughout all succeeding operations.

Conversely, if gasoline seems to work most effectively, then by all means continue to use it as much as possible. But, if under the influence of gasoline, the film seems to "cut through" too rapidly, or if the finish appears sticky or seems to "roll" under the sandpaper, or if, when wiped dry, the film does not appear bright and reflective, then by all means switch back quickly to mineral oil. All too frequently, neither the mineral oil or the gasoline solvent alone will be entirely satisfactory, in which case it is entirely justifiable to mix these liquids in a proportion roughly indicated by the intensity of the actions of both alone, and it is only a matter of minutes before the optimum cutting liquid can be chosen.

Rubbing Compounds Follow Suit

After the film is level, the next customary operation is to rub out the sand scratches and bring the surface to a high polish by rubbing with a soft cloth and a suitable compound. At this point the complexity of the problem increases slightly since, in addition to the numerous home-made mixtures which are used, a great many commercial rubbing and polishing compounds are available — and each of these is as unknown in chemical content to the finishing foreman as is the new lacquer he is trying.

If the final rubbing is done with pumice or a mixture of pumice and rottenstone, followed by a finishing treatment with rottenstone alone, it is advisable to wet the abrasive with a material similar to that chosen as best suited to the sanding operation. And, since a lesser biting action is required for polishing, it is well to follow gas sanding with a mixed gas and oil rub. Similarly, if a gas and oil mixture, or oil alone has proved to be the best sanding medium, then a rubbing vehicle of straight mineral oil will probably give the best results.

However, if the rubbing and polishing is done with a commercially prepared compound, and that compound seems to bite into or

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"burn" the film excessively, it is well to remember that the action of that compound can be tempered by using a little mineral oil along with it.

A Word for Water Rubbing

Probably one of the least used liquids for furniture rubbing is that most inexpensive and most readily available material, water. Numerous objections have been cited for the use of water on finished furniture. Among these are the claims that water will penetrate and weaken the glue joints, that it will soften the veneer glue and lift the veneer, that it will penetrate the film and cause moisture checking, and finally that it cannot be easily dried and wiped from the completed work.

None of these objections, whether real or imaginary, is without its counter advantages. In the first place, water will assist the leveling and polishing of both high-nitrocellulose and high-resin content lacquers alike, and will not soften or penetrate either one more than it will the other. The average lacquer is quite water resistant, and a properly coated piece will not be penetrated by water to the extent that the glue joints, the veneer, or the veneer glue will be affected in the course of ordinary treatment. Furthermore, if water is used to replace the more highly penetrating liquids, such as gas and oil, the polished film will be found much less susceptible to after-printing. And finally, while it is admittedly more difficult to dry a piece of furniture that has been rubbed with water, in comparison to one that has been rubbed with gasoline, it certainly is easier to remove all traces of water than it is to remove all residual mineral oil, as would be necessary if the

piece had to be spotted or refinished.

Be this as it may, water is a potentially valuable liquid which should not be overlooked when the usual question of gas versus oil rubbing arises. The important thing to remember is that a new lacquer is an unknown quantity until it has been either approved or rejected on the basis of comprehensive and thorough tests, and that such tests cannot be considered complete until the best rubbing medium for that particular lacquer has been determined, whether this medium be gas, oil, or the lowly liquid, water.

Rust-Oleum Paint Corp. Moves

The Rust-Oleum Paint Corp. announces that it has moved to its new offices and plant at 2425 Oakton St., Evanston, Ill. Telegrams should be addressed as above, but correspondence should be addressed to the company at P. O. Box 110, Evanston, Ill.

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AND
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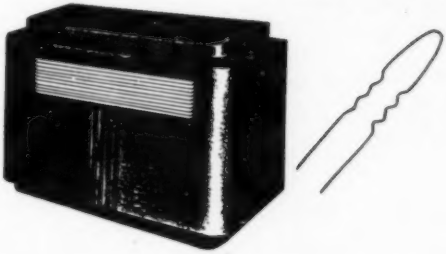

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WHAT I AM UP AGAINST AS FINISHING FOREMAN

In a War Industry Plant

BY RED SPARKS

Experiences of a foreman finisher in a war industry . . . one of many foremen who are being pushed to the limit for production on unfamiliar jobs that present new problems. It calls for quick thinking, immediate action and results—from a larger crew of men, many of whom are recruits on their first factory work.

LAST fall, in an issue of this magazine, my friend Al Samoine told you how well I was getting along with the change-over from our regular product to the defense program. Of course, what he wrote at that time was mostly about what we had to do to adjust our finishing room to accommodate both the regular line of production and the tanks we were starting through. It covered maybe the first three months of work, and that was about a year ago.

I felt pretty good after those first three months. I thought that things were going to run along smoothly. Most of the new men were taking hold fine and doing the best they could. Occasionally, of course, one or two of them would let down a little and throw the procedure out of order, but I singled those men out—sort of got them off in a corner somewhere by themselves—and gave them a little friendly talk on their duty toward their country. I reminded them about the articles in the daily papers wherein the President called on every man to do his part. I also advised them to read the articles, and told them to listen to talks on the radio by our big men in the government, relative to the same thing.

These talks were necessary mostly with the young men. They would work pretty good for quite a while after having been hired; then their jobs would begin to seem unattractive, uninteresting and tiresome. They would complain about almost anything that popped

[*to page 38*]

HILO

PROTECTIVE COATINGS

that meet Government Specifications

Federal Spec. Board	U. S. Navy
Federal Housing	Supplies and Accounts
Cantonment Paints	Aeronautics
U. S. Army	Ordnance
Quartermaster	Ships
Motor Transport	U. S. Post Office
Ordnance	U. S. Treasury
Chemical Warfare	U. S. Coast Guard
Air Corps	U. S. Maritime Comm.
Engineers	U. S. Housing

Panama Canal

Hilo offers these, and will furnish, if desired, a notarized certificate which states that the particular Hilo Protective Coating does meet the required specification.

Your request for method of application, price and delivery will have prompt attention.

HILO VARNISH CORPORATION

42-60 STEWART AVENUE
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ELECTRICAL engineer. ... with high temperature ... at your convenience. Box W ... Chic... Sun.

WANTED

IN 1942 for the preservation of Democracy:
45,000 Tanks
60,000 Airplanes
20,000 Anti-aircraft Guns
8,000,000 Tons of Ships, more shells, more bombs, more, more, more, more, more, more, more, more,

XPERIENCED men on turret lathes: radial drill hands; polisher and buffer on flexible shaft. ALL... CO.

TR... 54...

Pa...

PAINT... East...

PAINT... mate...

PAINT... gua...

PUR...

How to keep finishing abreast ...

If increased speed of manufacture has put a strain on your finishing department or is causing you to sacrifice the quality of your finishes, we suggest that you call in the Binks Engineer who is in your neighborhood now. He will be glad to survey your plant and to give you his suggestions without obligation. That Binks engineers are well qualified to help you at this time is witnessed by the installation shown to the right. This large, high capacity finishing department in one of America's leading airplane plants is indicative of the skill of these men and the great prestige they enjoy. No finishing problem is too large or too small for their attention. Write today and we will put you in touch with an engineer immediately.

SEND NOW FOR A BINKS CATALOG-DATA BOOK

BINKS MANUFACTURING COMPANY
3114-40 CARROLL AVENUE - CHICAGO, ILLINOIS

NEW YORK - DETROIT - SAN FRANCISCO - PHILADELPHIA PITTSBURGH - CLEVELA... MILWAU...

ast of accelerated war production

MILWAUKEE - BOSTON - LOS ANGELES - SEATTLE - ST. LOUIS - WINDSOR, ONTARIO, CANADA

into their heads. Good fellows they were, but not used to a steady grind at the same thing day in and day out. Some of them began to manufacture false reasons for complaint. News of this spread around and did harm in various ways.

Handling the Men Tactfully To get Their Cooperation

A few of the men did things that provoked me almost to the point of discharging them; for instance, like getting the "belly ache" on a day when we had a particularly hard job to do. They would just stay at home that day. When they returned next day, they reported that they had been sick. Of course, the hard job was done then, and work would proceed until another especially hard day was at hand. Then maybe another youngster would lay off.

I called those fellows into the office and gave them a talking to. I told them these one-day sicknesses were not a good thing to chalk up against their work record.

You will remember I said that many of these young fellows were working on their first real job, and that they had to be taught how to conduct themselves. Well, one of the things they had to be taught was to take their job on the defense work seriously. They are learning. It's better to teach a potentially good worker how to conduct himself than to discharge him and start out all over again with another new man. Maybe you won't get as good raw stock to work with in the second man.

Yes, we have been at it a year or more now and let me tell you that even good raw stock is getting scarce. I'm glad that I had patience with some of those young fellows, for now they have learned what is expected of them and they are producing.

A year on defense work in the finishing department was a big job and, as I said at the start, it seemed as though things were going smoothly—and they did too for a while. But since then there have been radical changes, changes mostly in the volume of production demanded.

Stepping up Production Into Really Big Figures

A year ago Mr. Sanders, our superintendent, talked about 50 tanks a week to me. Gosh, I'd like to tell you what figures he talks of now, but I don't know that I dare tell you how many we are making. It might be some information that shouldn't be published. But I can say this much: He does not speak in terms of a week. Now it is so many per day, and it sums up to a "speed up" that seems almost impossible. It wasn't though, but it did mean a lot of other things. That's what I started to talk about.

All of this played the very devil with the finishing department. Gosh, we hardly had room to spot anything in it; and supplies and materials kept rolling in until it became cumbersome, and the woes of the foreman—that's me—began to multiply. I had no place left in which to put anything. More work meant more supplies but no storage space was available, so what to do?

I suggested several ways to handle the influx of material, but was met with the reply: "We'll check into that and see what can be done". It takes time to check into something and, while waiting, conditions get worse. You don't get much help at times like we are

[*see page 44*]

FOR CONVINCING WOOD EFFECTS

use a

- Reproduces wood grained effects on wood, metal, wall board, etc.
- Uniformity of results guaranteed.
- Assures maximum production at minimum cost.

There's no guess work about results when the Bonnie Wood Press is used for reproducing wood grains. Only a few units are still available for prompt delivery without priorities so do not delay writing for complete information and sample panels of Bonnie Wood finished board. A wide variety of wood effects, ready to run, are also obtainable from us with each machine. A free demonstration of the Bonnie Wood process can be arranged for any interested concern.

FINISHING SYSTEMS, INC.

929 E. KENTUCKY ST. LOUISVILLE, KY.

1. WATCH AIR AND FLUID PRESSURES TO SAVE MATERIALS

▶ The pressure is on America to *conserve.* In the finishing department this means *using no more materials than necessary* per unit. Actual experience demonstrates that often *twice as much* material is used when dusted away on flat surfaces through "fogging" and "overspray" due to excessive air and fluid pressures. (See chart below.)

2. HIGH PRESSURES MEAN HIGH COSTS

(Cost figures based on synthetic paint at $2.25 to $2.50 per gallon, with spray gun opened wide for an hour.)

$10.00 an hour
60 lbs. on air
6 lbs. on fluid

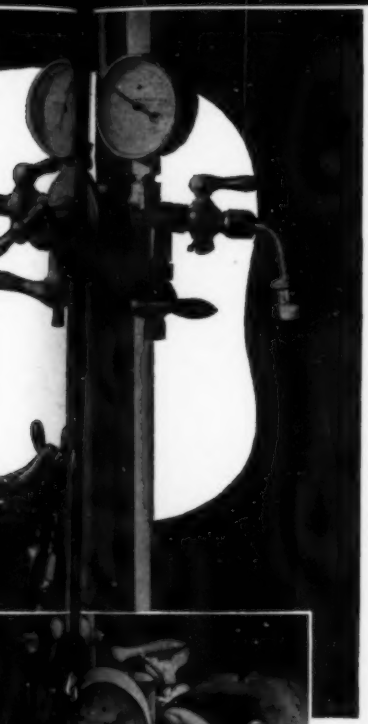
$11.50 an hour
90 lbs. on air
6 lbs. on fluid

$20.00 an hour
90 lbs. on air
15 lbs. on fluid

▶ This chart graphically shows that correct pressures (60 lbs. on air and 6 lbs. on fluid for most jobs) reduce amount of material used and thus lower costs. Allow spray operators only enough fluid to get required film thickness . . . only enough air for proper atomization.

3. DETERMINE AND M… PRESSURE ST…

▶ Ask a Du Pont Represe…tative, … spraying equipment, to help you det… sures for particular applic…ons. O… set, someone should be ma… respon… checking pressures supplie… the g… gauge for testing.



INE AND KEEP ESSURE STANDARDS

Represe tative, or your supplier of t, to help u determine proper pres- r applic ons. Once the standard is d be ma responsible for constantly supplie the gun, using a pressure

CHECK THESE 11 POINTS TO SAVE MATERIALS

NEXT MONTH READ ABOUT

1. Temperature of paint
2. Viscosity of paint
3. Air and fluid pressures
4. Adjustment of spray gun
5. Handling of spray gun
6. Triggering of the gun
7. System in the strokes
8. Uniformity of coating
9. Thickness of film
10. Causes of rejects
11. Touch-up procedure

● The Du Pont Man can show you how to control these factors . . . can aid you in conserving finishing materials and lowering painting costs. And remember—he's backed by a vast chemical organization with the finest of facilities for developing, making and applying better industrial finishes. When the Du Pont Man calls on you—call on him for help. E. I. du Pont de Nemours & Co. (Inc.), Finishes Division, Wilmington, Del.

Look for a detailed discussion of each point in this monthly series.

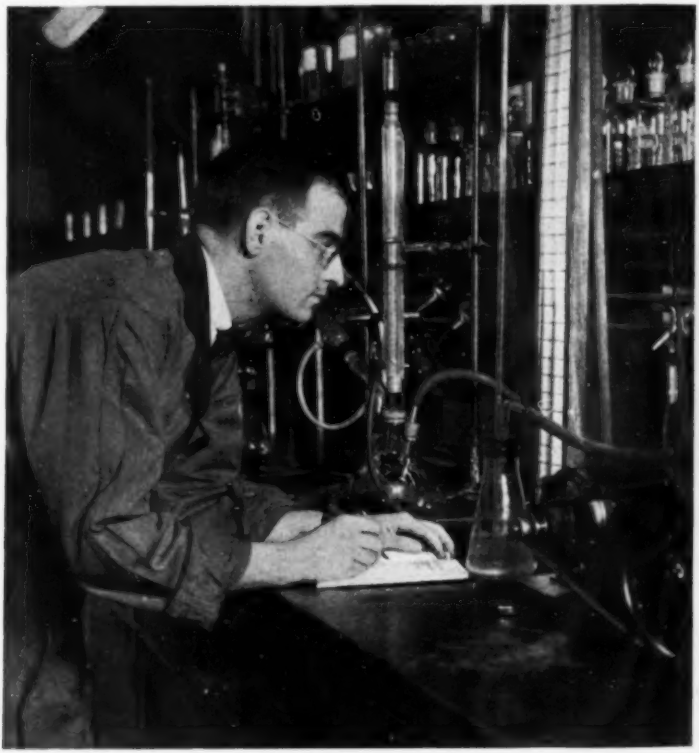
How RESEARCH is Helping to Create

THE pictures on these pages were taken in the new three-story Ault & Wiborg Research Laboratory in Cincinnati, built to house A & W's expanding research and product engineering organization.

More than ever before, research is vitally important in the field of industrial finishing. New finishes with special characteristics are required for war work. Shortages and priorities make it necessary to develop formulations which do not employ raw materials needed for war.

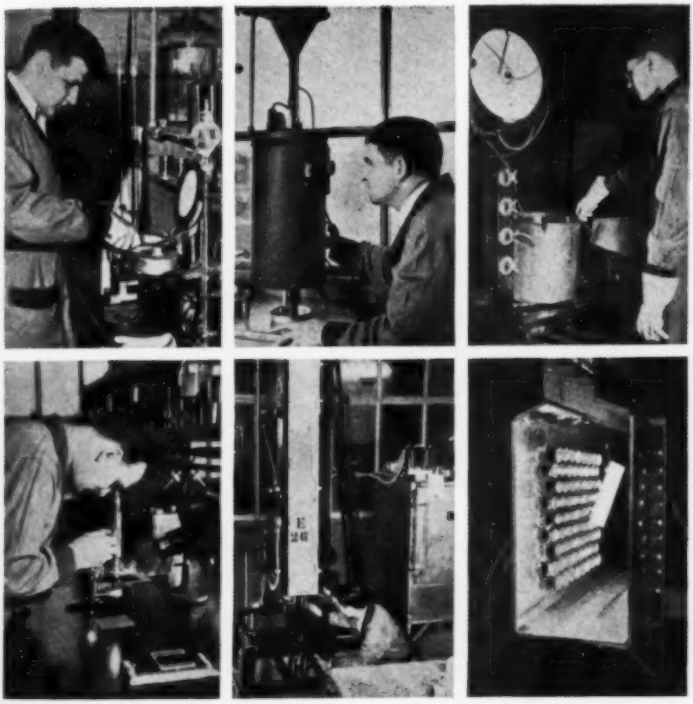
Already, A & W research has created special finishes for several coating operations which are speeding America's arms program. It has devised new formulas; it has developed alternate materials for making finishes to be used both in war industries and in civilian fields.

Since 1878, Ault & Wiborg has been known as a builder of fine industrial finishes. Ault & Wiborg intends to maintain this reputation through the war years—and after the war is won.



NEW MATERIALS are constantly being tested by Ault & Wiborg technicians in an effort to maintain production without using raw materials required for war purposes. By varying formulations and by making use of alternate ingredients, A & W is continuing to turn out finishes for products essential to America's war effort and for other important industrial applications.

Finishes to Meet New Wartime Demands



MORE RESEARCH activities can now be carried on by Ault & Wiborg in its new Laboratory, just completed in Cincinnati. Modern testing equipment is supplemented by actual production setups, where finishes for special applications can be applied as they would be in commercial operations. For example, the photograph in the lower center shows a machine set up in the Laboratory for coating cable, such as that used in airplane wiring systems. In the lower right is a picture of Ault & Wiborg's infra-red lamp setup, where finishing materials designed for this speed-baking system are tested.

New Facts About Infra-Red

AULT & WIBORG CORPORATION
DEPT. I. F. A., 75 VARICK STREET, NEW YORK

Please send me a copy of your new brochure, "New Facts About Infra-Red." No obligation.

NAME_____
COMPANY_____
ADDRESS_____

working in now, because everybody else is busy trying to solve their own problems.

A finishing-room problem is a little different. With daily operations, daily moving of work, cleanliness and good housekeeping, you can't let the place become cluttered up. A good bit of the work going through now receives only one coat. It's fast moving stuff. The aisles have to be kept clean so that the work can move forward.

Getting Along With Other Harassed Foremen

Right here is a good place to tell you that if you want to find out what kind of a fellow the other foreman is—that is, any foreman in charge of other departments—just come in contact with him when both of you are working at high tension and trying to coordinate the work passing from one to the other. It takes tact to handle the other foreman, and you have to watch pretty close to see that he doesn't handle you.

The delivery of material to the finishing room brings into effect this coordination between departments. The routing of work through the whole factory has to be handled with a nicety. Here, where I work, different commodities come from various departments to be finished, and quite often I get these from all the departments on the same day.

"Where do you want these cabinets, Red?" asks a laborer from the fabricating department, when he comes in with a load.

"How many, Sam?" I ask him.

"A hundred this time, Red. Where shall I put them?"

Then, before I can find a place to spot the cabinets, the general labor boss himself comes in inquiring for room to place parts for the tanks that have to be painted in a hurry, because those particular parts are low in stock and are needed badly on the assembly line.

Emergencies Arise Where Hurry-up Jobs Interfere

In spite of the best efforts in any kind of management there will be times when emergencies arise. Just because a part is low in stock cannot be called inefficiency or failure of the system. Various reasons cause these things to occur—for example, shortages of raw material or a breakdown in special machinery, just to name only two.

Here I am in my finishing department, where a year ago I thought the big push on armament production wasn't going to be much of a problem, after I got started into the swing of the changed set-up. Now I find that it's the toughest job I've ever had to tackle. At times I have been fighting mad. Who wouldn't get mad, after getting nicely started on your day's production, to have a big job dumped in on you with orders from headquarters that it had to be done right away? And it was a job that meant a different set-up and a different kind of paint with a different application. And maybe you were right in the midst of a job that you couldn't let loose of instantly. Maybe it was a particular job that required the skill of your best workman and perhaps your best workman was doing a graining job that he couldn't stop when it was only half finished.

Well, if you are a finishing-room manager you will do this hurry-up job somehow. It may make you mad, but if you are the right sort you'll do it, and you won't let any

of the other work suffer because of it either. Say, I've broken up my set-up five or six times in a single day, in order to do some jobs that just had to be done.

Your Department Must Be Flexible to Handle War Work

"Flexible". Did you ever stop to think how that word "flexibility" enters into the order of a department? Let me tell you, Mr. Foreman, if your department isn't flexible, there is something wrong with your management.

You don't have to be possessed of highly technical knowledge of all sorts so that you know precisely how to do everything, but you do need an abundance of good "horse sense". Of course, every experienced finishing foreman will have the necessary knowledge of his trade at his finger tips, but that knowledge alone is not sufficient.

Superintendent is Busy Too; He Hasn't Time for Your Problems

Suppose your firm is working on a new commodity—some new line they want to put out. In the hurry to get it going it was overlooked that the thing had to be prettied up so as to have that necessary "eye appeal". It is suddenly wheeled into your department to have the finishing touches put on. Upon examining it, you find that some parts are almost inaccessable for paint.

"How am I to paint that, assembled completely as it is? Why, there are parts and places there that you just can't get at."

"Don't ask me, Red. That's your job." The superintendent smiles and walks away; and, of course, I go right ahead and do the job. Here, too, finishing knowledge and practice play their parts.

Later on a job comes in that is a new contract. It's defense work but quite different from any that we have done before. Let's say it's a knurled gadget that is part of a tripod used in connection with the artillery branch of the army. This piece will have to be painted completely on the outside, but the inside must be kept perfectly clean because of working parts that fit into it. You look it over and find that you cannot hang it up nor set it on anything to paint it. You cannot hold it in your hand to paint it either. In fact, the thing looks like you would have to mask the inside and then suspend it in mid-air in order to get the finish on it, so as to pass government inspection. Okay, but there is no technical knowledge to help you out. However, good "horse sense" suggests the way and you go right ahead.

Five minutes of looking at those gadgets, and you think up a practical way to handle them. All it requires is the purchase of a gross of common corks of a size that will fit into the openings. The corks serve as a perfect mask to protect the inside and, by using the cork in one end to act as a base to set them on, the job is accomplished without any trouble at all. When finished there is not a trace of smudge on the gadgets where the corks were removed.

Unusual Jobs are Frequent

There are plenty of these unusual jobs coming to the finishing room now—small parts that go to make up an assembly of some kind and have to be finished as a part, because maybe the assembled unit has polished working parts that must not be touched by paint.

Perhaps your company gets an order to make up 5000 units like

[*see page 48*]

FAMOUS

TED WILLIAMS' ALL-STAR HOME RUN

DETROIT, BRIGGS STADIUM, JULY 8, 1941 — LEADING 5 TO 3 IN THE NINTH INNING OF THE ALL-STAR BASEBALL CLASSIC, THE NATIONAL LEAGUERS MUFF A DOUBLE PLAY OPPORTUNITY, BRINGING UP ***TED WILLIAMS***, TOP BATTER OF THE AMERICAN LEAGUE, WITH TWO ON BASES. DIGGING IN HIS SPIKES, THE LEAN BOSTON RED SOX SLUGGER SMASHES A FAST PITCH HIGH INTO THE TOP DECK OF THE RIGHT FIELD STANDS, CLEANING THE BASES TO WIN THE GAME BY A SCORE OF **7** TO **5**, IN ONE OF THE MOST ***FAMOUS FINISHES*** IN BASEBALL HISTORY.

PITTSBURGH

FINISHES

FOR THE RIGHT FINISH EVERY TIME, CONSULT YOUR PITTSBURGH MAN!

TODAY, AS IN THREE PAST WARS, THE PITTSBURGH PLATE GLASS COMPANY IN COOPERATION WITH INDUSTRY, IS PLAYING AN IMPORTANT PART IN AMERICA'S TREMENDOUS WAR EFFORT. HIGHLY TRAINED TECHNICAL MEN ARE WORKING WITH MANUFACTURERS THROUGHOUT THE COUNTRY, HELPING TO DEVELOP THE BEST AND MOST EFFICIENT FINISHES TO PROTECT DEFENSE PRODUCTION! USERS OF INDUSTRIAL FINISHES CAN SAVE TIME AND MONEY BY CONSULTING OUR EXPERTS, ONE OF WHOM WILL BE GLAD TO CALL AT YOUR CONVENIENCE.

PITTSBURGH PLATE GLASS COMPANY
INDUSTRIAL PAINT DIVISION • PITTSBURGH, PA.
THRESHER VARNISH COMPANY DIVISION, DAYTON, OHIO.

Industrial FINISHES

the one I just described. The various parts are dumped in on you, to be painted immediately. You don't have time to give much thought to the problem and besides the pieces you have to paint constitute perhaps a day's work, speaking in man-hours. Right away you have to devise some way to do the job without any extensive outlay in the way of equipment.

Don't Blame Management

You might say that being forced to handle jobs of this kind, without any previous information as to what is coming, shows poor management on the part of someone in the organization. No, you are wrong in thinking that. Any foreman who can't handle a one-day job with accuracy and speed, probably won't be a foreman very long — not now anyway — because some of these defense jobs are so important and needed so urgently that every minute of time that can be dispensed with in getting the order out, is dispensed with. You can't ponder long now on what you are going to do. You have to be able to think fast and accurately and act the same way.

A gas-fired continuous-conveyor multi-pass oven with automatic dip, drain, bake and cooling system which is used for the processing of motor parts. On parts that must have more than one coat, the operator simply lets the unit go through the cycle two or three times, as necessary. Photograph, courtesy of the Despatch Oven Co.

So, Mr. Foreman, your associates and superiors in the organization—the estimators, engineers, production manager, etc. — probably thought you were smart enough to handle the job when you got it, without taking time to go into the details with you. You received the order for the job all right; checked in and knew you had the specified paint for the job, but the order called for the 5000 units. It hadn't been "broken up" into parts.

I Get Damned Mad—But I Get Out the Work

Now take me for instance. I seem to function better when I'm just a little bit incensed. (That's a mild word to use.) In other words, I mean to say that I can think clearer when I'm put on the spot. As an example, in comes a load of something or other being pushed along by the shop tractor and right behind the tractor is the production manager who steps up to me with a serious look on his face.

"Red," he says, "we've got to have these today."

"Today!" I explode, and right back at me he comes.

"Yes sir," he says with emphasis on both words.

Then follows a little discussion about the job. The production manager goes on about his business, leaving me with a blood pressure about ten points higher than normal. Now every job in my department was almost as important

[*see page 53*]

Vedoc

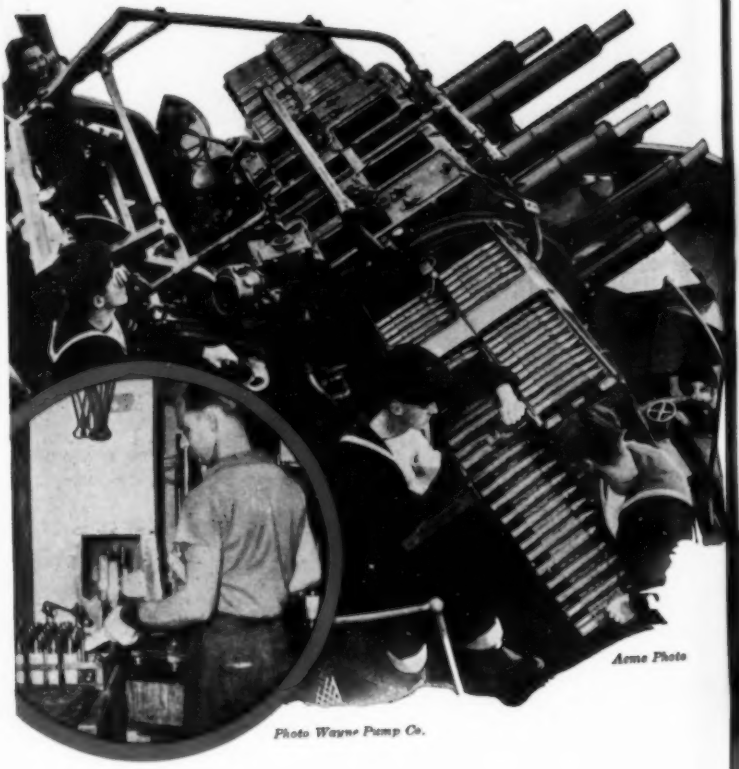
Many of you are today manufacturing for Offense. Tanks, trucks, planes, shells and other products must be finished in easy-to-apply, economical and durable paint. For this reason, ***Vedoc*** has developed a full line of War Paint, meeting Government Specifications. ***Vedoc*** War Paint is designed to help "beat the Axis" and is already in use in leading plants.

Our regular line of ***Vedoc*** organic finishes is also available.

Write us for full information today.

LIQUID PLASTICS DIVISION
FERRO ENAMEL CORPORATION
CLEVELAND, OHIO

Stuka Stoppers



Acme Photo

Photo Wayne Pump Co.

This naval anti-aircraft pom-pom battery sprays a pattern of 2 pound shell as a shotgun covers a flying clay target. With it a crack gun crew can quickly turn an enemy dive bomber into a "dead pigeon."

Each gun fires and reloads automatically with amazing rapidity. Yet its speed is hardly more amazing than that with which these same shells pass through the DeVilbiss Spray System that Wayne Pump Company uses for painting them. They enter as bare metal and come out automatically coated with asphalt inside and gray lacquer outside, dry and ready for loading, at a rate of 800 an hour.

Wayne's choice of equipment grew from years of experience with DeVilbiss Systems for finishing its well known gasoline and oil pumps—plus the speed and efficiency these systems have shown in painting innumerable other types of arms and munitions in factories, arsenals and shipyards everywhere.

Our national need for increased war production is clear. Yet no assembly line can run faster than its finishing department. If your share in the job ahead means greater output—greater speed—prepare for it NOW by installing modern DeVilbiss Spray Painting Equipment.

THE DEVILBISS COMPANY • TOLEDO, OHIO
Canadian Plant: WINDSOR, ONTARIO

DEVILBISS
SPRAY SYSTEMS

Wow! That's a BIG one. Lots of protection in its long barrel . . .

Walker's Protective Coatings

are dependable too!

You can depend upon Walker's Protective Coatings to be uniform, tough and durable. There is no guess-work in their formulation. They provide just the right coating for guns, ships, planes, shells and hundreds of other war items. Walker representatives will gladly demonstrate!

Primers
Lacquers Wrinkles
Surfacers Synthetics

"Call on Walker"

H. V. WALKER CO.
Elizabeth, New Jersey
MODERN PRODUCTION FINISHES

as the one that had just arrived. They were all my responsibility. Right at the time, though, the production manager was interested only in the job he had followed in.

Yes, I get provoked at being put on the spot—sometimes. I wouldn't be human if I didn't. Just the same, when I'm put there I pride myself on being able to get off the spot, without backing off. It gives me a great deal of satisfaction to be able to meet the demands made upon me and, by so doing, I've established a reputation. There is no more delight to me than to be able to get the work done, no matter what the demands are. I even try to better the demands, if possible.

Making a reputation though, is a whole lot easier than maintaining it. Once your superiors find out that you can come through, they just naturally begin to give you tougher assignments. But no matter how tough your assignments get, do them. After all, you may only be going through a proving ground for something better.

So leaving you with this thought, this is Red Sparks signing off, hoping that what I've said may be the means of helping you other foremen over some tough spot.

Filling Seams and Cracks in Sheet Metal Products

THE FILLING of seams, cracks and dents in sheet-metal products was somewhat of a problem in the past, but it is now worked out satisfactorily.

In the past, it was customary to use an oil-base glaze or putty which was put on with a 2½-in. putty knife. It was applied smoothly and baked around 250° F. for about two hours; then sanded and primed, after which the surfaces were sanded and primed again.

I give you this to show the difference between the old and the new ways of doing putty glazing.

The old way required too much time and too much primer. We wanted to cut down the primer to one coat. We began to look for a source of supply of pyroxylin putty that would do the trick. The requirements were that it must:

1) Have perfect adhesion to bare metal;

2) Have a minimum shrinkage;

3) Be slow drying enough to allow it to be applied with a glazing knife and still dry in about two hours to sand.

All putty glazing and sanding was to be done before priming. After spending several months testing sample after sample of different brands of lacquer putties, we finally hit oh one that does the trick satisfactorily. The name of the manufacturer of this material will be given on request, and any questions referring to the use of the material will be answered by the author in care of this magazine.

Putty glazing is done with 2½-in. flexible-blade glazing knife. All seams, dents and cracks are glazed and force-dried in a drying room at 150° F. for one hour. Then the second application of putty is put on and the work is returned to the dry room at 150° F. for another hour, after which it is sanded and moved on to the prime booth, where primer is applied by spraying.

We have never had any trouble with chipping or poor adhesion or difficulty of any kind, as long as the putty is dry before sanding and priming.—F. HAGAN.

More War Paints

Blackout paints, blackout papers, luminous paints and camouflage paints are announced by Lasting Products Co., 200 Franklintown Rd., Baltimore, Md.

For best efficiency, blackout paints must be neither water-soluble nor hard and rigid. They must be flexible so they will expand with glass, and they must be easily removable.

Luminous paint, which glows in the dark, is used for making doorways, switches and other obstructions.

"H-R" camouflage paint is heat-repelling and avoids evaporation of volatile materials. These paints are made in all U. S. approved camouflage colors.

Small Electric Ovens

According to an announcement from Despatch Oven Co., Minneapolis, Minn.:

"Many important manufacturers of aircraft, aircraft engines, aircraft instruments, and other miscellaneous products have found that this standard line of small Despatch ovens fit their needs perfectly for various heating and drying operations up to 400°F. Most of these ovens are in stock available for prompt shipment.

"These small ovens are especially desirable for the drying and baking finishes on precision instruments, or for the drying and hardening of radium-painted numerals on instrument dials. Finishes can be properly fixed on any parts that are within the capacity of the oven.

"These units are ideal as drying and baking ovens to dry glyptol dipped coils of various descriptions. Also, they serve as heat control cabinets in which to store parts and sub-assemblies to prevent rust and corrosion. They can be used for heating parts after plating to remove hydrogen."

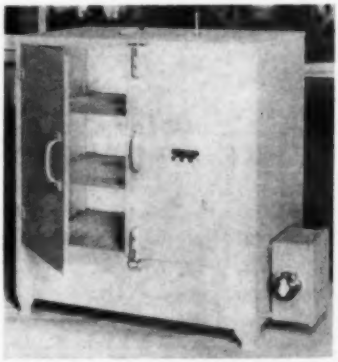
This standard line of Despatch ovens provides three standard stock sizes, the smallest being 14x14x18-in.; the second, 14x14x24-in., and the third 18x24x30-in. Electric heating elements are located in the bottom portion of the oven and through the use of an open-coil graduated heater system, uniform distribution is obtained. Air flow is established by vent openings in the bottom of the oven and vent openings in the top, the upper ones being provided with adjustable slide dampers.

The oven has good uniformity and good ventilation; it is clean and convenient. The units are provided with automatic temperature control that will operate within close limits at any temperature in the operating range.

These units are available for operation on 110-volt, single-phase, 60-cycle AC, or they may be obtained for 220-volt, single-phase, 60-cycle AC. While all of these units are of the gravity convection type, Despatch also makes a complete line of standard ovens with forced mechanical convection for forced-air circulation.

New . . .

MATERIALS SUPPLIES EQUIPMENT

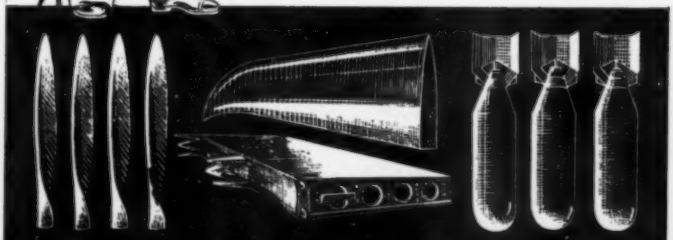


Operates on 110-volt or 220-volt current.

Is Zinc Chromate Primer Your Bottle Neck?

Even before Pearl Harbor, Berry Brothers anticipated the increased demand for Zinc Chromate Primer Spec. 14080. *Now* that the need is here, we are *ready*. A new and complete manufacturing unit is now operating. Raw material schedules are geared to high-speed production. Shipments are being made promptly, *and additional production capacity is still available.* If you are engaged in war work, and need a larger volume of primer coming into your plant to step up output, use Berry Brothers Zinc Chromate Primer Spec. 14080.

Quality Finishes Since 1858



BERRY BROTHERS

Industrial Varnishes • Enamels • Lacquers

DETROIT, MICHIGAN • WALKERVILLE, ONTARIO

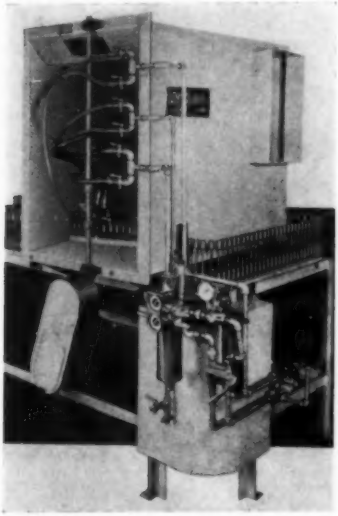
JERSEY CITY • BOSTON • CINCINNATI • CHICAGO • ST. LOUIS

Automatic Machine Paints 20-mm. Shells

Painting is a most important operation in the production of shells and bombs. The great variety of types, sizes and painting requirements of these projectiles has necessitated the development of many different kinds of shell-painting machines. Some are simple, standard, manually-operated equipment; others are complex machines with conveyors, drying ovens and paint-circulating systems.

One of the more recent developments in equipment of this kind is a standardized DeVilbiss automatic machine for small shells and shell parts. The one illustrated coats the outsides of 20-mm. shells at a rate of 2000 per hour.

This machine is built around a "chain-on-edge," variable-speed conveyor which is of sufficient length to allow for a 10-minute drying time at a production rate of 1000 shells per hour or a 5-minute drying time at a production rate of 2000 shells per hour. Spindles for supporting the shells are of the removable type and are equipped with flat surface pulleys for rotation inside the spray booth. Spindle rotation is by means of a separate variable-speed drive. Workholders for the shell mount on the spindles.



A compact outfit for automatically spray painting the outsides of 20-mm. shells.

Spray guns are the automatic air-piston type with adjustable cam-operated spray control. The 10-gallon pressure-feed paint tank is equipped with an air-motor driven agitator. Spray booth, exhaust fan, air transformer and the necessary air and fluid hose, control valves, fittings and connections complete the machine.

Machines of this type are now in use in the painting of the several classifications of 20-mm. shells. They are products of The DeVilbiss Co., Toledo, Ohio.

Polytect Sealer, Filler, Coating

Polytect is a coating made of materials not affected by priority ruling. It comes in form of a creamy paste, ready for use. The three grades include Regular, Smooth (S) and Heavy (SP). It is manufactured in a variety of colors. Polytect can be reduced with water and is applied by spray gun, brush or—for certain purposes—is rubbed on by hand. It can be tinted or stained. Its plasticity while wet allows for texturing or other surface designing.

Polytect dries within a short time to a coat of great hardness without baking and will not become brittle. Applied in one coat, it has sufficient body to give a solid foundation for lacquer, varnish or paint, without previous preparation of the surface. At the same time it acts as a neutralizer (for instance, on concrete) or sealer (on porous materials). It adheres to all solid surfaces except those that are waxed or greasy. Woodpulp, cardboard or paper mache objects are actually strengthened by an application of this material.

Polytect is not impaired by humidity

There's No Comparison!

• "Surfacene" is no more like other combination stains and fillers that have been tried in past years than a modern fighting plane is like the historic airship that first flew at Kittyhawk.

That's been demonstrated by leading furniture manufacturers who have already standardized on this sensational new Glidden development. They're enthusiastic about the superbly clear tones it gives—delighted with the way it saves finishing time. "Surfacene" combines staining and filling in one operation—dries in 5 hours—allows sealing the same day—ready for final finish next morning.

If you're using lacquers, it shortens your present schedule by 24 hours, and cuts application and finishing costs. Or you can change to varnish, and still maintain present overall finishing time. You're ready for any transition.

And with "Surfacene" Combination Stain and Filler, be sure to use its two new companion products—"Surfacene" Pigmented Wiping Stains and "Surfacene" Glazes. They're designed to be used together for best results. A letter will bring a Glidden man to show you how.

THE GLIDDEN COMPANY • National Headquarters, Cleveland, Ohio

Factories or Branches in Principal Cities

TIME TESTED — GLIDDEN PRODUCTS CARRY THIS FAMOUS MARK OF QUALITY

GLIDDEN

Everywhere in Everything

before or during work. The coatings are not affected by heat or by application of alcohol, thinner and similar materials. Polytect coats can be made water-insoluble without closing the pores by application of the product, Polyfix W, a fixative.

It can be metallized by rubbing the surface with brass wire brushes, can be polished with fine steelwool, or burnished with agate or glass burnishers.

The following properties are utilized in a great number of decorative and industrial fields:

Sealer and foundation under lacquer, for figures made of plaster or paper mache.

Filler for grained wood or small defects in plaster and other compositions.

Coating and texturing medium for frames, plaster casts, baked clay.

Decorative finishes (coloring, metallizing) on novelties made of wood or plaster.

This material is a product of Polytect, Inc., 34 E. 12th St., New York.

Lumiplast Luminous Liquid Plastic

A new luminescent pigment has been developed by the Technicraft Co., 121 E. 24th St., New York, N. Y. It can be added to thermoplastic molding powders, and is also put out in liquid plastic form for surface application.

The product contains no radium or phosphorous, and is non-toxic and non-injurious. It can be applied to any fabric, material or paper with perfect safety. Whether in molded form, or liquid plastic, it produces a fine luminous afterglow of long duration. The product is invaluable for war defense blackout purposes, or wherever an interruption of light may cause danger.

Lumiplast can be used to mold many commercial and decorative products, such as advertising displays, electric switch plates, toys, door numbers, aisles and steps, light pulls, door knobs, safety signals and decorative novelties.

Lumiplast, in liquid plastic form can be applied by brush or spray. It comes in powder form so that it can be sized and dusted with the ordinary bronzing machine—or by hand for smaller quantities.

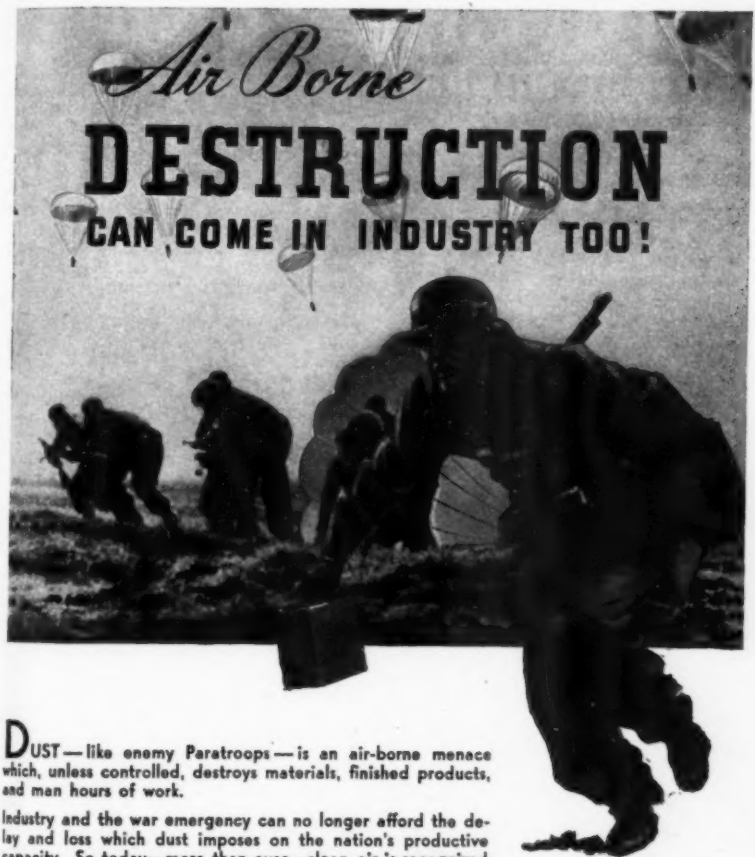
Lumiplast is activated by ordinary day or artificial light. It will glow brilliantly after a few moments exposure, and with greater activation will hold its luminosity throughout the night. In liquid plastic form it will embed the luminous molecules uniformly in the surface to be treated. It will firmly adhere to all surfaces and is insensitive to external agents.

The pigment comes in a number of afterglow colors such as yellow, blue, green and orange. In daylight, the color of the molded article is various shades of yellow depending on the amount of pigment used.

Knife Heater Has Pilot Light

The electric heater for burning-in knives, as illustrated in the accompanying cut, has been used in wood finishing rooms for more than 20 years without a pilot light. However, in response to increasing demands for a heater equipped with a pilot light, this feature has been added. When the little light is turned on there is visible evidence that the current to the heating element is turned on, and vice versa. It serves as a safety feature as well as a profitable means of saving electric current which otherwise might be wasted by the workman forgetting to turn off the electric current to the heater.

Pilot light is at the lower end of base.



DUST—like enemy Paratroops—is an air-borne menace which, unless controlled, destroys materials, finished products, and man hours of work.

Industry and the war emergency can no longer afford the delay and loss which dust imposes on the nation's productive capacity. So today—more than ever—clean air is recognized as an ***industrial necessity***. Practically every new defense plant has been supplied with AAF air filtration and dust control equipment, and hundreds of additional installations have also been made in existing plants whose facilities are required for war material production.

American Air Filters for protecting product finishing are available in many types from large automatic self-cleaning filters for finishing rooms to smaller unit filters for spray booths. Our engineering service is available without obligation. Write us for Bulletins!

AMERICAN AIR FILTERS

AMERICAN AIR FILTER COMPANY, INC., 102 CENTRAL AVE., LOUISVILLE, KY.

IN CANADA, DARLING BROTHERS, LIMITED, MONTREAL, P. Q.

As for the safety feature, the manufacturer claims that his heaters without the pilot light are practically foolproof and will not overheat, even when left with the current turned on continuously. This device is a product of the Op-Al Electric & Mfg. Co., Indianapolis, Ind.

Semi-Automatic Unit Coats Inc. Bombs

Paasche Airbrush Co., 1909 Diversey Parkway, Chicago, Ill., announces a line of semi-automatic units for coating the interior of incendiary bombs, 20-mm., 37-mm. and 40-mm. shells of various types. A number of these units are now in operation in factories producing war material.

The unit is designed to coat two tubular pieces at one time, permitting the operator to work at highest efficiency. Average production for one operator is 18 pieces per minute. Machine operates in the following manner:

The unit is compact and occupies a minimum of floor space.

Pieces are placed in holding fixtures which are designed so that they guide the shells to the correct position for spraying. The shells rest securely on shoulders, the bottom of the fixtures being open to preclude any possibility of paint collecting within.

Starter button is pressed, actuating the air cylinder which, in turn, lowers the airbrushes until the heads enter the required distance into the pieces to be coated. Spraying starts automatically with upward return stroke of cylinder. Spraying stops when airbrushes return to starting position, leaving the shell interiors completely and perfectly coated. Shells are removed from holding fixtures by the operator and the unit is ready for another spraying cycle.

From the time the operator presses the starter button until the interior has been coated and airbrushes return to starting, the operation of the machine is entirely automatic. This assures an absolute uniform application. Adjustments are readily accessible, and are set at factory to meet average operating requirements.

The two type F995 UBRB-2 automatic airbrushes are equipped with special extensions and external atomizing multipleheads which produce a "bushy" type spray pattern, assuring complete and perfect coating of the interiors of the shells. The airbrushes are simple in construction, easy to clean and readily adjusted. They are designed to stand up under long continuous use.

Units of this type are generally used in connection with other Paasche automatic units for coating the exterior of the pieces.

Durad Luminous Paint

A luminous "blackout" paint which can be applied to objects of all kinds and renders them visible in the dark, has been developed by Maas & Waldstein Co., 438 Riverside Ave., Newark, N. J.

Unlike the radio-active finishes commonly used on watch dials, the new

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● HERE'S SERVICE designed to meet your urgent war needs in finishing materials—
Shipment same day or within 48 hours on most items . . immediate quotations . . . laboratory analysis on formula or finishing problems in a matter of hours . . . prompt information on whether we make a certain defense item and if not WHERE YOU CAN GET IT!
That's why merchandise is rolling out of our plant . . . to finish AIRPLANES, AIRCRAFT INSTRUMENTS, PROTECTIVE COATINGS FOR MACHINE TOOLS, QUARTERMASTER CORPS ITEMS and ESSENTIAL AUXILIARY ITEMS both large and small.
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Dopes — Thinners
Lacquers — Synthetics
RANDOLPH
FINISHING PRODUCTS CO.
Carlstadt New Jersey

paint owes its luminosity to a substance which re-radiates light, according to the manufacturer. It contains no toxic materials. After the paint has been exposed to either daylight or ordinary electric illumination for a few minutes, it glows for about 20 hours and repeats the action after re-exposure.

The new paint, which is known as Durad Luminous Paint, must be used over a special primer and thinned out with a special thinner, both of which are supplied with the paint. One thick coat, or, preferably, several thin coats, of the paint produces a flat white finish suitable for indoor service. For a glossy finish, or for outdoor service, the paint is covered with a special clear topcoat. Each coat air-dries in from one to four hours, depending upon weather and other conditions.

New Fluid Prevents Metal Corrosion

Deox-x is the name of a newly developed concentrated fluid that can be diluted and used to clean grease and oil from metal surfaces, and which also serves as a thin coating to prevent corrosion of stored metal. Prime coats are applied directly over it and as a result the paint job or protective coating lasts much longer.

Some of the manufacturer's claims include the following:

1) Cleans all metals of oil and corrosion.

2) Inhibits further corrosion for a practicable period—weeks or months—prior to finishing, painting, enameling, etc.

3) Prepares the metal to "take" the finish coats. The coating "bites" into the metal, stays "put," wears longer, etc.

4) Can be used on all metals, including galvanized sheets with excellent results.

5) Saves sandblasting and pickling.

6) Can be applied cold or warm, by dipping, spraying or wiping.

7) Is non-inflammable and non-toxic.

No free samples are sent out. For further information, write Protective Coatings, Inc., 10391 Northlawn, Detroit, Mich.

"Prep-Wash" Cleans and Protects Metal

Prep-Wash, developed and offered by Neilson Chemical Co., 6564 Benson, Detroit, Mich., thoroughly removes oils and greases, as well as drawing compounds from all metal surfaces. This product also has a neutralization effect on hand marks and other mild rusting agents. At the same time it imparts a light phosphate rust-preventing film to the metal surfaces and slightly etches the metal surfaces thereby promoting better adhesion between the paint and the metal.

Prep-Wash was primarily designed to provide an economical method of cleaning—one that would have many advantages over prevailing cleaning methods in improving the adhesion of the paint. It also insures a longer life to the paint by eliminating all factors that could possibly have an undesirable effect in causing paint failure by improper cleaning or preparation of the metal before painting.

Prep-Wash is neither an alkali nor an alkali-cleaning system. Similarly, it is not to be confused with solvent cleaning, including vapor degreasing. The Prep-Wash system is an entirely new departure from prevailing cleaners and cleaning methods and offers a mechanical method of cleaning that has many desirable features.

Blackout Paint

For plant windows in areas where blackouts have been ordered, the Sherwin-Williams Co., Cleveland, Ohio, has developed a blackout paint that meets requirements of the Office of Civilian Defense. It is said to give excellent results in opacity, weather-resistance and non-reflective proper-

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NOROY **SEALERS** NOROY

Fill Well—Sand Easily—Good Bond

RUDLACO

RUDD LACQUER CORPORATION

127 MAIDEN LANE, NEW YORK

Factory—Rahway, N. J.

ties, when used on either the inside or outside of the glass. Known as S-W Blackout Black, the material is supplied in one-gallon and 5-gallon containers and can be applied by brush, as it comes from the can, or by spray when reduced 1/3 with petroleum thinners.

According to Sherwin-Williams' technicians, the first coat in window blackout work should be white or a light color to increase reflection of interior illumination. The finish coat of blackout paint dries to a dull finish which prevents exterior lights from reflecting on large window areas.

New Material for Use in Metal Cleaners

An improved wetting and emulsifying agent, "Dresinate," for use in conjunction with all types of alkaline metal cleaners has been developed by the Research Department of Hercules Powder Co., Wilmington, Dela.

The new material assists aqueous alkaline solutions in certain applications to replace some of the chlorinated solvents, now scarce because of the shortage of chlorine. The Chemical Branch of the War Production Board, the company said, has recently urged metal fabricators to investigate cleaning methods which use no chlorinated solvents.

The penetrant, a finely divided, uniform powder, is available in practically unlimited quantities at a lower cost than the common emulsifying agents used by the metal cleaning industry.

The new cleaning aid is suggested for use in conjunction with trisodium phosphate, sodium metasilicate, caustic soda, soda ash, borax, and other alkaline detergents. Its use is indicated for cleaning metal prior to rustproofing, lacquering, painting, or plating.

Research work carried on at the Hercules Experiment Station indicates the material is suitable for all metal cleaning operations where an alkali cleaner is used to remove grease, oils, soil and organic materials.

"Addition of 3 to 15% 'Dresinate' to an alkaline cleaning solution, while it reduces the alkalinity slightly, nevertheless increases the detergency of the solution," the company says.

"The wetting action of 'Dresinate' puts a thin film of alkaline liquid uniformly over the metal surface, wetting out oily areas equally as well as areas free from oil. The emulsifying action assists the alkaline cleaner to get the foreign material in suspension and carry it away.

"The material can be mixed with alkaline cleaners without special equipment since it is a dry powder, readily and completely soluble in water. Alkaline solutions containing the material are rapidly rinsed from metals, speeding the time required for the cleaning operation."

New Coating Prevents Condensation Drip

After three years of research and tests under all conditions, the J. W. Mortell Co., Kankakee, Ill., announces "NoDrip," an improved plastic cork coating that stops dripping from condensation or sweating pipes, walls, ceilings, tanks, etc.

The first product of this kind introduced by this company for the

Beauty . . .

is only skin deep... but deep enough to compel attention

Beauty is a quality that is admired and applauded by everybody . . . . everywhere. It may be the admiration of the human figure, or it may be the eager appreciation of the finish on an exquisite piece of furniture, a radio, or a thousand and one products made of wood or metal.

We specialize in making fine finishing materials that possess protective qualities and endurance. Our creative studio, manned by talented artists, combines various types of these finishing materials to give commercial products distinctiveness, beauty and sales appeal.

Our Studio service is offered without charge or obligation to reputable firms.

ROCKFORD VARNISH COMPANY

Manufacturers of Protective and Decorative Coatings

ROCKFORD, ILLINOIS

same purpose was more limited in its use to large areas because it required power spray equipment to apply it, but "NoDrip" has a greatly enlarged field, not only in industry but in the home and on the farms, due to its easier and quicker method of application by using an ordinary paint brush.

"NoDrip" is spread in a layer ¼-in. thick over any metal, concrete, brick, plaster, tile, wood, composition, galvanized or painted surface or corrugated ceilings. "NoDrip" can be painted any color.

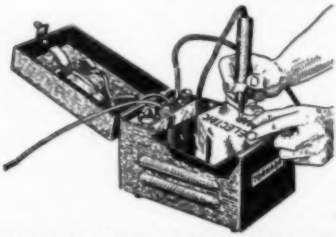
Complete information is contained in a new illustrated circular showing interesting uses of "NoDrip"; a copy will be sent on request.

Electric Etchers Write on Metal

Announcement is made of Electric Etchers of special design now added to the line manufactured by the Breuer Electric Mfg. Co., 5100 N. Ravenswood Ave., Chicago, Ill.

These etchers, made in various models, are specially adapted for marking dies, tools and other portable equipment for easy, permanent identification of all smooth-surfaced steel, iron and their alloys. The outfit includes tools, switch, indicator lamp, cords, etc., all of which are contained in a compact, portable case.

Etchers are made for both light and heavy etching. The lighter type of etching is on tools, gears, saws, etc. The heavy-duty etching is on large-sized smooth-surfaced objects, including shovels, crowbars, castings, etc.



Contact of etching point with object cuts a deep, lasting identification mark. Writes just like writing with pencil and is just as simple.

Red light tells operator when switch is on. Etcher plugs into socket of corresponding current. Switch is turned to desired etching heat. Model A weighs 16-lbs. Model B weighs 29-lbs. Further details may be obtained by writing to the manufacturer.

Like a Plated Surface; "Platelustre"

A colored transparent finish for use on polished metal, which is unaffected by war-time restrictions, is being produced by Maas & Waldstein Co., 438 Riverside Ave., Newark, N. J., as a substitute for electroplating and bronze-powder finishes.

This finish, which is marketed as "Platelustre," consists of a concentrated enamel, of the desired color, added to a clear lacquer. When applied on polished metals, it makes them resemble copper, brass, bronze, color-treated aluminum and steel, or other metals, according to the manufacturer.

It is applied by spraying or roller coating and can be furnished for either air drying or baking. Flat stock finished with certain grades can be formed after baking. Two-color finishes can be obtained by "relieving" operations. The colors are fast to light in indoor service, the manufacturer states.

Detroit Rex Promotes Newbery

Detroit Rex Products Co., Detroit, Mich., manufacturers of metal-cleaning equipment and materials, announces the promotion of Mr. W. F. Newbery to Central Region Manager.

Lea to Distribute Spray Equipment

The Lea Mfg. Co., Waterbury, Conn., has taken over sales and distribution, in Southwestern New England, of the Paasche line of lacquer and paint-spraying equipment made by Paasche Airbrush Co. of Chicago, Ill.

IN STEP WITH THE TIMES

Industrial Finishes

that make the most of available raw materials to give you greatest durability, together with attractive appearance and economy.

• FOR APPLICATION BY ALL METHODS

JAMES B. DAY & CO., CHICAGO

How to Finish Redwood Caskets

We would like to obtain certain information about the finishing of redwood caskets. Can you advise us on the proper method of taking a redwood casket shell, sanded down and finishing it in a hand-grained lacquer finish?

We are interested in knowing how to seal the wood, prime coat it, cover nail holes, application of ground and grain coat, top sealing and lacquering.

There seems to be a raising of the finish, mostly at the joints, causing hair line cracks in the finish.

We believe that the success will be in the proper sealing and use of materials that do not have a tendency to crack like lacquer. Any help you can suggest will be greatly appreciated.—L. CASKET CO.

For your general information, redwood does respond to natural finishes and stains, and to tinted or slightly pigmented finishes. Redwood takes and retains these exceptionally well; no special procedure is necessary in applying them, except to follow the instructions of the manufacturer of the finish. Perhaps our pamphlet on interior finishes will give you some idea of the range of these. Actually, we recommend no one company's product in particular, as practically all of the paint manufacturers have products that they recommend for different purposes.

When you desire to produce a natural finish, fill the countersunk nail holes with one of the commercial forms of putty especially prepared for the purpose and tinted to match the finished wood. These are available in some of the plastic wood compounds and also in a product known as Famowood, which is made up for various woods, including redwood, using the cellulose of the particular wood for the base of the product. The advantages of these products are, in general, that besides matching the wood they do not stain around the nail holes and they do not shrink away from the perimeter of the nail hole. Avoid an oil putty because invariably the wood immediately adjacent will absorb some of the oil and darken in color.

It would, of course, be advisable to seal the wood on all faces, edges and ends for casket manufacture. Avoid using, as a sealer, any type of product that is long in oil, because such condition would probably give some movement in the coating applied on top of it. We think that probably a lacquer sealer is as good as any.

In connection with the graining of the wood, you could apply the grain compound on top of the lacquer sealer and then finish with a clear lacquer. Instead of the graining compound we think probably some thought should be given to the possibilities of decalcomania transfers. These are, of course, used in automobile manufacture, and offhand we know of no reason why these could not be used on caskets.

Questions; Answers

Questions are welcome and will be answered promptly by mail. Readers are invited to prepare and send in additional information relating to any of these questions and answers.

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CABINET OVENS—TRUCK TYPE OVENS

CUSTOM BUILT OVENS
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Prompt deliveries can be effected, and with high priority ratings, these can even be bettered. Phone, write or wire your requirements to us.

GEORGE KOCH SONS, INC. EVANSVILLE INDIANA

Actually, the best advice that we can offer you is to take the matter up directly with the paint manufacturer whose products you use. We mean by this, the Technical Service Department of the company. All of the leading paint companies have materials which they recommend for specific purposes. If you are attempting something new and original, your logical point of contact is to let the Technical Service Department of the paint manufacturer work out this problem.—B. F. WADE, Consulting Engineer, California Redwood Ass'n.

Apply a filler of good quality and, after the usual few minutes allowed for it to penetrate and begin to set, wipe off the excess and rub in the usual way for any natural wood finishing job. Let the filled surfaces dry thoroughly—several hours overnight. Then apply two thin coats of shellac, lacquer sealer or synthetic sealer. Sand the surface with very fine sandpaper.

Then apply the finishing coats of lacquer or varnish. Rub with water and pumice stone; wash clean and rub with water and rottenstone; wash again, wipe dry and polish with some suitable polishing compound.—A. D. LANG.

In regard to your question about the finishing of redwood caskets, I think your trouble might be in the lumber you are using. The reason I say this is the fact that you say the lifting and cracking is mostly at the joints. Lumber that is not properly cured or dried will do this when it is put into the heated finishing room—more so if a force-drying system is used. It might also be the fault of the glue that is used in the joints.

If this has all been checked into and found to be all right, then it might be that the wood is not properly sealed before the finishing coats are applied. I would suggest that a coat of casco glue sizing be sprayed on and left to dry; then sanded smooth and followed by a thin coat of lacquer sealer.

Fill the nail holes and cracks with a good grade of putty, of which there are several on the market. Be sure that the putty does not contain any oils, as this would cause lifting. When the putty is dry, sand it smooth with No. 6/0 sandpaper and apply a coat of lacquer primer-surfacer—not an oil primer or surfacer, as the top coats would lift such a coating. When this is dry, sand smooth with No. 8/0 sandpaper or with No. 320 wet-or-dry paper; then proceed with ground coat, using colors ground in japan. Follow with the graining color, which also should be made of colors ground in japan. This should be followed by a coat of lacquer sealer before the top coats are applied. Be sure that there is no oil, or colors containing oil, used under the lacquer.—W. S. KOCH.

EDITOR'S NOTE: We invite further letters on this subject—preferably by someone thoroughly familiar with finishing redwood caskets.

Electric Drying of Finish

Ever since publishing a question on this subject last year, along with an unsatisfactory answer, the Editor has been seeking additional information about drying a protective coating on metal by heating the metal with electric current, passing a high-frequency current through the metal product, the idea being that this produced drying

UNCLE SAM'S SHOPPING LIST

(a few of the articles finished with lacquers or synthetics)

aircraft accessories
automotive equipment
pipe joint cement
electrical equipment
electric cables
fire fighting equipment
furniture, wood and metal
gas mask canisters
gas-proof clothing
hardware
lockers, cabinets, etc.
ordnance canisters
raincoats, synthetic coated
rainsuits, synthetic coated
shells and bombs
shell boxes
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tools and machinery

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By the use of CLAREMONT FLOCKS, either Cotton, Wool or Rayon, as a finish on your products you cannot help making profit because the unusual attractiveness obtained is sure to stimulate your sales. The cost is much lower than the mark-up warranted by this unsual finish.

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Manufactured in accordance with government specifications for Defense Industries. Years of experience in the formulation and manufacture of "*Absolute*" Thinners for specific uses enables us to supply the Aviation Industry and other Defense Plants with their thinner requirements.

Samples and quotations will be sent upon receipt of your specifications and requirements.

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from underneath instead of surface drying.

Many of the engineers in this country (the inquiry came from England) refer to this method of heating as "induction heating."

Following are some of the letters we received. Each one contains scraps of information that are of interest. Perhaps someone else, seeing this, will write us more about it.—Editor.

I have had contact with two such methods, neither of which has been completely worked out. The General Electric Co., at Lynn, Mass., has done a great deal of work on drying with electric heat. In the manufacture of an electric stator or armature, the insulated copper wire is wound on the iron core. This is then dipped in a bath of insulating varnish and later baked out in a conventional type oven. However, by short-circuiting the leads on the stator and applying a current with normal voltage and very high amperage, you can induce an excessive amount of heat very quickly throughout the stator. The company uses this method on some rush repair jobs and has also set up a trial oven where the stators are carried on the conveyor line and attached to movable electric connections. This work would be practical only for repair work or for very large volume of conveyor line production.

The second method is drying by high-frequency current. If iron or copper is placed between two electrodes operating at very high frequency, the metal will become quite hot, the temperature depending on the frequency and the voltage of

the current. I understand that the Chrysler Corp. seriously considered this method of painting automobiles, but gave it up because of the expense. It is quite attractive because you can get almost instantaneous heat in any metal portion without getting much heat in attached wood or rubber parts.—J. W. McHUGH.

In regard to the inquiry from England on electric drying, I believe reference is made to induction heating or induction drying, as used by the finishing department of the Chrysler Corp. in Detroit, Mich.

No doubt complete information on their system can be obtained from the Chief Electrical Engineer of the Chrysler Corp., or from the Detroit Edison Co., who supplies the current for this operation.—R. S. READ.

In reply to your recent letter asking for further information on induction heating for paint drying, let me report that the Chrysler Corp. has been using induction heat for drying the paint on metal wheels of cars for a period of eight or nine years. We also used induction heating for drying the complete body of the car after the bonderizing operation; and still another application, the complete car with glass, rubber, upholstery, etc., run through an induction oven when repair painting is required on the finished car.

In a specific reply to the first paragraph from your English inquirer, please note that we can not discover any difference in the surface or general life of a particular film that has been dried by induction heating, over any other method of drying. The advantage has been

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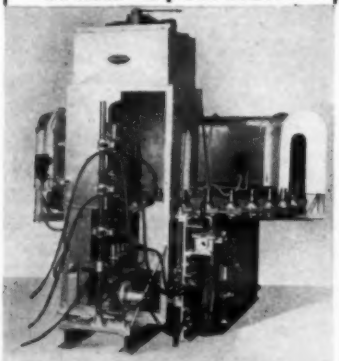

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in the maintenance and ease of operation of induction ovens. It is a fact that we have spent practically nothing on these ovens all these years. There is nothing to get out of order, and regulation is automatic. We simply start out in the morning.

I was very much interested in the reported work by the General Electric Co. at Lynn, Mass., and I wish to report that I developed this plan for the Hoover Vacuum Cleaner Co. six or seven years ago. It was highly successful in our experimental work but the cost of equipment at that time was a discouraging feature. I wish to refer you to the A. I. E. E. Publication, Electrical Engineering of November, 1935, page 1210 for my technical article on this whole matter; also, I would like to have you refer to the S. A. E., volume 37, No. 5, September, 1935. I am sorry I do not have copies to forward to you . . . . E. L. BAILEY.

Replying to your letter of February 12, induction heating has been used for drying, baking or curing enamel, paint and finish applied to metal surfaces, such as, office furniture, automobile panels, etc. Since the shutdown of the automotive industry, we cannot say whether or not there is any equipment in operation at the present time.

Answering the second paragraph of your letter, as already stated, it is not only possible but also feasible and not exorbitant in cost. Unless there was a very marked difference in conductivity of material being used, the time of drying would not be affected.

We might also add that the above mentioned process is fully protected by patents.—BUDD INDUCTION HEATING, INC.

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American industry is answering the call to produce war goods in great quantities with no delay. Manufacturers of materiel with rigid protective coating specifications interested in modern production finishes will find our products and service the answer to their finishing production problems.

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Our sixty-seven years' experience, combined with the production facilities of one of the finest plants in the country, is supplying many manufacturers of war products with production line finishes. Listed here are some of the war products now being coated with our finishing materials.

One of our production finishing experts will be glad to call and suggest production methods and materials to meet your requirements.

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Metal Trades Convention May 19-20

The 44th Annual Convention of the National Metal Trades Association will be held at The Biltmore Hotel, New York, N. Y., on May 19 and 20, 1942. The association's national office is at 122 S. Michigan Ave., Chicago, Ill. The eastern office is at 60 E. 42nd St., New York, N. Y.

Lighting for Sabotage Protection

Glare, the anathema of lighting engineers, is now welcomed as an ally in the present defense against the saboteur. Westinghouse lighting engineers are using it to blind a would-be intruder to a war-materials plant while the guards remain inconspicuous in the shadows, just as one can at night see clearly into a lighter room but cannot be seen readily by those inside.

A Fresnel lens, in reality a miniature lighthouse beacon, throws a flat, fan-shaped beam of light, with great efficiency. A row of these luminaries is set on posts several feet away from the buildings to be protected, aimed so their light is projected slightly downward away from the buildings. The space between the luminaire and the buildings is virtually in darkness. A would-be intruder approaching the plant sees only these blinding spots of light; guards behind the lights see him clearly.

Ferro Enamel Modifies Its Trade Mark for War

The Ferro Enamel Corp., Cleveland, Ohio, manufacturers of organic and inorganic finishes and colors for industry is announcing in trade papers the modification of its 20-year old trade mark to tie in with the country's Victory Program. The old trade mark consisted of a check and circle. The significance of the mark was "that every package was Ferro checked."

The new trade mark is a circle with the word "Victory" in it. There is a slight resemblance between the old and the new emblems. The new emblem is being published with the following comment by Ferro: "The famous Ferro Check Mark goes into retirement for the Duration of the Emergency. From now on it will be used in Ferro advertisements as the Emblem of Victory."

Booklets Describe New Materials

Krebs Pigment & Color Corp., Wilmington, Dela., has published two informative booklets on the newly developed rutile crystal form of titanium pigments. The properties of the pigment, "Ti-Pure" R titanium dioxide, and of "Ti-Cal" R, titanium calcium pigment, are discussed. The new pigments are the result of ten years research devoted to increasing white pigment capacity.

Sections of the booklet treat "Hiding Power," "Color," "Abrasiveness," "Consistency-Flow," "Drying and Film Hardness" and other characteristics. Each publication also contains four full-page figures and graphs showing hiding power, brightness, spreading rates, chalking comparisons, etc., between the new rutile titanium pigments and nearest counterparts of the previous anastase types which have less opacity and brilliance.

Oven Catalog

A 12-page illustrated catalog, printed in red, yellow and blue is ready for distribution by The Lanly Co., 750 Prospect Ave., Cleveland, Ohio, manufacturers of ovens for various purposes, including the baking of enamels and other protective coatings.

Lighting for Seeing Booklet

An attractive and informative booklet of 24 pages, 4x8½-in., printed in two colors, illustrates and describes a variety of lighting equipment for many different purposes. Copies are available by writing Fostoria Pressed Steel Corp., Fostoria, Ohio.

Foam Mixing Chamber

The latest design in Foam Mixing Chambers is described in a news release published by the American-La-France-Foamite Corp., Elmira, N. Y. It has a very definite place in safeguarding, against fire, the vast quantities of petroleum products and other flammable liquid supplies needed in our National War efforts.

Dust Collector Catalog

A 58-page, completely revised catalog describing American "Dustube" dust collectors, both knock-down and assembled types, has just been published by American Foundry Equipment Co., 555 S. Byrkit St., Mishawaka, Ind.

New Books

CATALOGS CIRCULARS NEWS RELEASES

Prepared as a handy manual to serve plant engineers and officials in the selection of proper control equipment for specific dust problems, it provides full information and photographs of the models available with operating data, construction features and basic specifications of these high-efficiency cloth-bag type collectors.

A complete engineering manual section is included which gives practical essential data for efficient operation of a dust control system, technical layouts and engineering tables and charts especially useful in planning applications of dust control units.

The catalog is spiral bound and of standard 8½ x 11-in. size for convenience in filing as a reference manual.

Copies of Catalog No. 72 may be obtained directly from the manufacturer.

Fluorescent Chemicals

Chemical Publishing Co., Inc., 232 King St., Brooklyn, N. Y., has just published a book entitled, "Fluorescent Chemicals and Their Applications." The authors are Jack De Ment, Research chemist and H. C. Drake, Editor of The Mineralogist Magazine. The book carries the date 1942 and is priced at $4.25.

Steel Roof Deck Catalog

R. C. Mahon Co. (industrial ovens, etc.), Detroit, Mich., has prepared and published an interesting and informative catalog on steel roof decks, which have many desirable features. The catalog is attractively printed in two colors, and contains many fine illustrations. It has 24 pages 8½x11-in., bound between heavy paper covers.

The Foxboro Co., Foxboro, Mass., will be glad to send copies of its new catalog, 22-A, to users of industrial pressure recorders, on request. This 32-page catalog contains interesting and authoritative information.

Industrial FINISHING

Distributed monthly to finishing room and paint shop foremen, production superintendents and company officials of metalworking, woodworking and miscelleneous industrial plants where production finishing is a major operation in parts and products manufacture.

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Editorial

We Will Face Labor Shortage In Furniture Finishing

* The United States is facing a skilled labor shortage in most every kind of industry today. While this shortage hasn't yet affected the furniture industry as much as other industries it will, in the months to come, become very serious and perhaps by 1943 it may reach a point that is unparalleled in American history.

Why? First, because we will have an army of perhaps five or six million men. Second, because our defense plants are continually expanding so that by 1943 the government has estimated that it will have about 23 million workers employed in defense plants alone. Third, because agriculture will employ thousands more than it has in the years past, due to the fact that we must have food for some of the allied countries as well as our own.

The Government has estimated that our total labor force in the United States, including men and women, was between 55 and 56 million at the beginning of the war, so there just aren't enough men to carry on our vast labor program. Women will have to be employed in the furniture industry as they are now being employed in other industries. In fact, they are the only answer to our labor shortage problem.

There are many jobs in the furniture factory that women can do just as well as men. This is especially true in the finishing department. Women are actually superior to men on some jobs because they have more patience for tedious process work. They make good hand sanders, glazers, decal appliers, inspectors, etc. And in the finishing rooms that are equipped with modern overhead conveyor systems women can be taught to operate spray guns; they will have no lifting or heavy work to do on an overhead type conveyor.

While women can't stand and

* Guest Editorial . . . Many readers can write an excellent editorial — two or three paragraphs that present a timely suggestion or valuable idea which will stimulate real thought on a live subject. The Editor welcomes guest editorials and pays for those that are published.

can't perform some jobs that men can, we will just have to use them for the jobs that they are adapted to, and use men, if we can get them, on the other jobs that are too hard for the women to perform.

Then we may be able to hire some skilled men who have quit the factory because of their age. They could perhaps be used as hand sanders, inspectors, etc. Perhaps we may be able to work in some young men who are below the draft age. All in all, this labor shortage may be our biggest problem in the months to come, but we must be prepared to solve it as best we can. —H. W. CHESTER.

Facing Our Situation in The Finishing Field

* The finishing field of today is going through one of the greatest changes it has seen or may see for many years to come, so each of us must be on his toes to help keep things rolling on to Victory. How can we do it? Well, let us check for example:

When our paint manufacturer calls and tells us that he cannot furnish this certain type of material, because it has certain solvents that are under priority rating, don't jump down his neck. He is doing his best and we have to get used to all types of substitutes. When we cannot get aluminum powder or paste, let's try a grey or a bright color that will answer the purpose. Also, there is a new paint known as *Platelustre*, and by using this we can overcome some of our losses of production and roll along. After all is said, the paint manufacturers are doing some splendid work bringing colors and pigments out daily that help us and also keep us moving.

The solvent companies today are facing a real shortage of materials because of the tank boats being sunk off our coasts. If they give us a reducer that may not set as fast, we can always check our heating units so that we can boost our heat and overcome some of the slowness in setting up.

If each foreman finisher will carefully study his own set-backs and try to analyze these things for

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With each order for the MASTER FINISHER'S SUPREME SERVICE KIT at only $34.50 you will receive free of charge a $12.50 PORCELKIT, shown at left corner of illustration. It contains 21 items, including PORCELSTIX—THE PERFECT BURN-IN-STICKS TO REPAIR PORCELAIN.

LACSTIX are burn in sticks which do not shrink or swell under lacquer.

LUBRISOL PAD-O-PAQUE PROCESS enables anyone to make finishing repairs in ten minutes without instructions.

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FINISHINE LABORATORIES, Inc., SYRACUSE, N. Y.

himself before he calls in his material salesman, he can help himself and the salesman as well.

One of the main things today is to cut out waste. This can be done by a careful checkup on equipment, operators, materials and supplies, such as paints, powders, rags, thinners and all other materials used in the department.

Let us all get behind the boys in our fighting forces and help them by saving on materials and working out substitutes that can help us to slap the Japs over in Nippon. —HOWARD H. FORD.

Furniture Manufacturers Will Look into War Work

* Full mobilization for an all-out war drive in the home furnishings industry will be seen during the spring market at the American Furniture Mart in Chicago, from April 27 to May 2. The industry is marshalling its forces to participate in the war effort, and the spring event will be called the "First National Defense Home Furnishings Market."

A dramatic consolidation for the efforts of manufacturers, retailers and Government will be projected at this conclave. War and civilian needs will be appraised, and concrete plans will be crystalized for vital industry activity.

Samples, designs, drawings, blueprints and photographs will go on display. These will deal with war and defense projects, including housing, camp equipment, blackout material, and a score of other items made or makable in factories previously engaged in manufacturing only products which turn houses into homes.

To this end, the American Furniture Mart is contacting all Government agencies and asking them to be represented during the market. Priorities, contracts, transportation and partial federal financing and other phases of war production work, it is hoped, will be cleared up by competent advisors while home furnishings manufacturers and dealers are together in one city under one roof.

A study of current national needs, procurable from the home furnishings manufacturers, reveals four fields in which this industry can serve:

1) *Defense Housing:* One and a quarter million defense houses are to be built in the next 12 to 18 months, financed by Government and private capital. Money for 90,000 of these has already been appropriated by the Government; 60,000 are already available or occupied.

Furniture and furnishings for these houses, to date, has been supplied from regular store stocks. It may be necessary for a new type of furniture, small in scale, simple in construction and priced to defense workers' budgets, to be evolved. Wide-awake planning by manufacturers, retailers and the government should keep this furniture practical and should maintain distribution through present channels.

2) *Products Adapated to Home Furnishings Factory Production:* Military and Naval wood office furniture, wooden dormitory and Defense Housing equipment in addition to furniture, wooden lockers, chairs, cots, litters, stretchers, and hospital equipment, ammunition boxes, ammunition carriers, gunstocks, wooden life rafts and wooden lifeboats all can be made by home furnishings manufacturers.

3) *Products for Aviation:* Laminated wood panels for airplanes and gliders, veneers for blackout shutters, airplane propellers and air field housing materials, may also be produced by this industry.

4) *For War Department and Civilian Defense:* Mobile stoves, ranges, bake ovens, gas masks manufactured complete or assembled, gun parts, textiles such as

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Go to your bank, post office, or savings and loan association. Tell them you want to buy Defense Bonds regularly, starting now.

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WOOD BLEACH
The mode persists for light wood finishes —modern interiors.
L. R. van ALLEN COMPANY
(Pat. Licensee)
406 N. Wells St. Chicago

duck, canvas and blankets, camouflage, blackout lamps and fire and defense warden equipment also could be turned out in home furnishings factories.

The American Furniture Mart is setting up a special staff to handle the Defense Market program. It will provide exhibited space for special exhibits to be assembled in Washington and elsewhere and brought to Chicago for the market. It is now surveying the home furnishing field for war and defense products already being made, and will have many of these on display.

Among the Government agencies being contacted are the War Department, Navy, Housing and Maritime Commission Contract Distribution Group, War Production Board and many others.

The supply of domestic hardwoods continues heavy and since a great deal of household furniture is made from woods originating in this country, no shortage of this commodity is expected to develop, despite heavier governmental demands. New finishes and new bonding methods are being tested out, and an increasing amount of wax finish on furniture may be expected, if present indications prove true.—LAWRENCE H. WHITING, President of American Furniture Mart.

DeVilbiss Moves St. Louis Branch

The DeVilbiss Co. has moved its St. Louis, Mo. Sales and Service Branch to 2737 Washington Ave. This new location has improved parking facilities and is more convenient for the trade.

New York Woodfinishers' Supply Co. Moves

Mr. Ralph Engel, president of the New York Woodfinishers Supply Co., Inc., has announced that on May 1 the company is moving its office, factory and warehouse to 109 Imlay St., Brooklyn, N. Y.; telephone Main 5-1626-7-8.

The announcement further states that the new quarters provide ample floor space for expanded activities which will enable them to operate more efficiently and continue to render prompt service. The company's new quarters consist of two buildings, one for the factory and the other for the office and warehouse. The new factory is well laid out with every modern convenience and facility for streamline production and control.

Mr. Engel invites friends and customers to call at the new quarters any time after May 1.

Letters from I. F. Readers

(Continued from page 8)

problems and to submit my recommendations. I have been engaged after submitting these recommendations to place them in operation.

Many times this has meant a complete change in their finishing operations whereby production has been increased at a much lower cost and a better type of finish obtained.

I do not represent any paint manufacturer or equipment company and have no axes to grind. All of my contacts have been made upon my past performances for my clients and I can furnish splendid references.

It is astonishing, however, how the average mind resists new ideas, but when actual facts are produced by placing these methods in operation every executive I have come in contact with wants to speed up production and save on materials.—Chas. R. Syer.

Sheet Metal Cleaning

Will you kindly send us names of suppliers for cleaning solvents for removing oil from sheet-metal parts before baking on enamel?—A. D. Co. (Specialists in Quantity Signs).

I would appreciate a list of the 1941 issues of INDUSTRIAL FINISHING, which contain articles on industrial washing machines or articles on processes which mention washers.—I. M. Co. (Metal Cleaning and Drying Machines).

Information given.—ED.

Rubbing Machines

Will you kindly send us the names of firms who manufacture hand rubbing machines?—H. & F. Co.

We presume you have in mind portable power-driven machines, therefore we are sending you the names and addresses of manufacturers of such equipment.—ED.

Paint for Wrestling Canvas

What are your suggestions relative to black or colored paint which can be used for painting lines, circles, numbers, etc., on canvas wrestling cloths? These are the new canvases with a long nap, which are now being used for wrestling instead of mats or pads. The paint must leave a surface that is soft and flexible, and it must

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SUPERVISOR WANTED

For specialty woodworking. Must have a thorough working knowledge and experience in both machining and finishing of wood. Capable of handling large production. Address IF-879, care Industrial Finishing.

WE BUY DIRTY SOLVENTS!

Don't throw away spent cleaning thinner, degreaser residues, etc. Send us a sample for quotation. We also reclaim for customers. DYTEX CHEMICAL CO., 267 Plain St., Providence, R. I.

FOR SALE

Eclipse Spray Booth 8'0" wide x 7'6" high x 6'0" deep, with exhaust opening in rear leading into 25" dia. stack—24" dia. 2-blade fan equipped with 1-h.p., 3-phase, 60-cycle AC motor at 1750-rpm. Will sacrifice.

HUBENY BROTHERS, INC.
Roselle, New Jersey

FOR SALE

One electric oven 72"x92"x77" high, 4" thick insulated walls; blower for controlling air circulation; complete with all electrical equipment including Bristol pyrometer heat controller with 100 to 700° F. range; 8 G. E. ribbon type heaters 220 volt, total connected load 40 K. W. Oven assembled and operating for inspection.

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Van Wert, O.

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be non-soluble under ordinary laundering conditions, since we intend to have these canvases laundered whenever they become soiled.—M. State College.

600°F. for One Hour; Whose White Enamel?

Will you kindly let us know of a possible source that can furnish synthetic white baking enamel that will bake at 600°F. for one hour? Any recommendation you can give us will be valued, since we are urgently in need of this information.—X. Mfg. Co.

We do not know of such a material. Can some reader tell us?—ED.

Who Will Coat Fabrics?

We are writing you because we have a problem in which we feel that you will be able to be of service to us. We wish to inquire whether you can give us a list of concerns in position to coat or apply a thin coating of thermoplastic materials in solution to very light-weight cotton fabric, the application being on one side only?—M. Corp.

Will some reader please suggest the name and address of any company that might consider this proposition. —ED.

Finish for Plastics

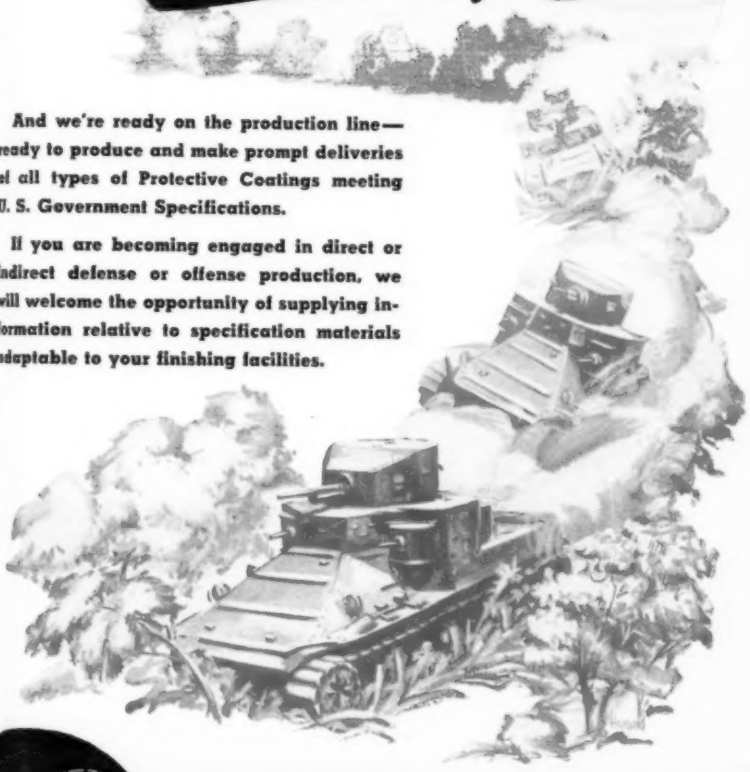
We are molders of a wood plastic material. The finish on the raw molding is usually applied by spraying or dipping. This company would be very interested to know whether there is available a non-volatile finishing material, possibly a water paint, that can produce a smooth high-gloss surface when applied to wood plastic. We hope you can assist us in this matter.—A. U. Co.

We haven't this information. Can some reader help us?—ED.

Heat-Resistant Paint for Grills

Our firm makes thousands of electric heaters yearly. Many of them use a chrome-plated grill. Our problem is to replace the plating with paint that will not discolor at from 600° to 800°F. If we cannot get something to resemble chrome in appearance, a gray, such as pearl gray, would be acceptable. Any help you may give me would be appreciated.—T. Mfg. Co.

READY on the Firing Line



And we're ready on the production line—ready to produce and make prompt deliveries of all types of Protective Coatings meeting U. S. Government Specifications.

If you are becoming engaged in direct or indirect defense or offense production, we will welcome the opportunity of supplying information relative to specification materials adaptable to your finishing facilities.

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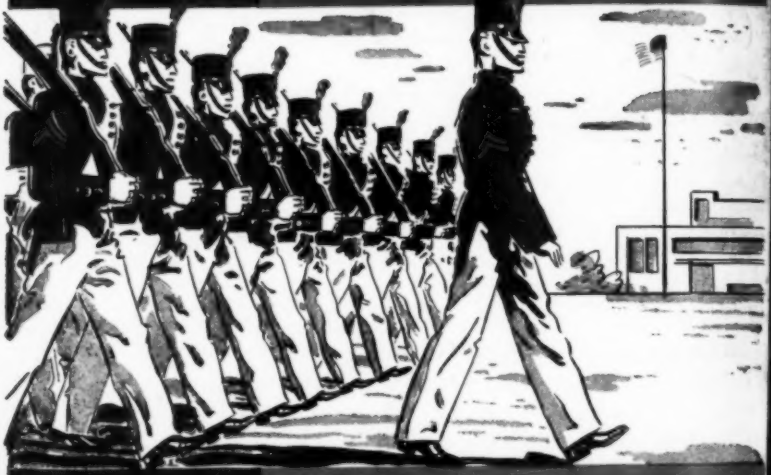
ADVANCE PAINT COMPANY

Manufacturers of Wood & Metal Finishing Materials

INDIANAPOLIS, INDIANA

UNIFORMITY



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If you have a finishing problem, our technical staff will gladly help you solve it.

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